S

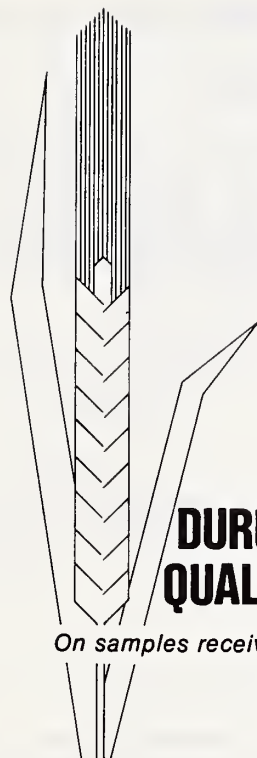# 1988 CROP

DURUM WHEAT QUALITY REPORT

Physical, Chemical, Milling, and Spaghetti Characteristics

United States Department of Agriculture
Agricultural Research Service
North Central Region

DURUM WHEAT QUALITY REPORT

On samples received from the 1988 crop

Source:

Spring and Durum Wheat Quality Laboratory
USDA, Agricultural Research Service
Harris Hall, N.D.S.U.
Fargo, North Dakota 58105

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE
in cooperation with
STATE AGRICULTURAL EXPERIMENT STATIONS

QUALITY EVALUATION OF DURUM WHEAT VARIETIES

1988 CROP1/

by

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INTRODUCTION

The twenty-fifth Durum Wheat Quality Report contains data for the 1988 crop. Samples of standard varieties and new strains of durum wheat grown in cooperative experiments in the durum wheat regions of the United States[4]/ were milled and evaluated by the Hard Red Spring and Durum Wheat Quality Laboratory in cooperation with the Department of Cereal Science and Food Technology on the campus of North Dakota State University at Fargo, ND. Methods and techniques are described in detail in the text of the report.

All samples received that were large enough to mill on the Buhler experimental mill were processed into spaghetti using the macro spaghetti processing method as described on page 13-14. A five pound wheat sample is required for the above method. All other samples were milled using the micro procedure and were not processed into spaghetti. Those samples having acceptable kernel characteristics and dust color score, if possible, should be included for macro processing the following year.

The purpose of this report is to make available to cooperators the quality data on standard varieties and new selections of durum wheat from the 1988 crop.

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[4]/ Cantrell, R.G. Wheat varieties grown in cooperative plot and nursery experiments in the spring wheat region in 1988. Department of Agronomy, North Dakota State University, Fargo, ND.

SOURCE OF THE 1988 CROP SAMPLES

Tests were performed on 535 samples from 20 stations in
seven states (California, Oregon, Arizona, North Dakota,
Montana, Minnesota and South Dakota) for quality evaluation.
Data presented in this report are from the Field Plot
Nursery, Uniform Regional Nursery, Western Durum Nursery,
Special Nursery and the Advanced Nursery samples.

FIELD PLOTS - 15

Minot and Langdon, North Dakota
Tucson, Arizona

UNIFORM REGIONAL NURSERY - 288

Day County and Selby - South Dakota
Crookston and Morris - Minnesota
Bozeman, Sidney and Conrad - Montana
Williston, Carrington and Prosper - North Dakota

WESTERN DURUM NURSERY - 30

Hermiston, Oregon

ADVANCED NURSERY - 191

Imperial Valley, Kings County, Delta and Davis - California

Special Nursery - 11

Casa Grande, Arizona
Pendleton, Oregon

1988 UNIFORM REGIONAL DURUM NURSERY

LIST OF ENTRIES

Entry No.	Entry	Sel. or P.I No.	Year Entered	Origin
1	Mindum	5296	1929	Minnesota
2	Stoa		1988	ND-USDA
3	Ward	15892	1969	ND-USDA
4	Rugby	17284	1970	ND-USDA
5	Vic	17789	1976	ND-USDA
6	Lloyd	476211*	1978	ND-USDA
7	Monroe	478289	1981	ND-USDA
8	Renville	510696	1985	ND-USDA
9	Medora		1980	AC,Winnipeg
10	Sceptre		1985	Univ. Sask.
11	Stockholm*		1984	NAPB
12	Fjord		1984	NAPB
13	D773/Vic	D8261*	1986	ND
14	D773/Clt	D8291*	1986	ND
15		FA883-323	1986	WPB
16	D785/D7869	D8302	1987	ND
17	D78121/78181	D8370*	1987	ND
18	D78114/78129	D8374*	1987	ND
19	D78142/D78114	D8380*	1987	ND
20	D776/D7224	D83103*	1987	ND
21	D7838/D7869	D8434	1988	ND
22	D8030/D8016	D8458	1988	ND
23	" "	D8459	1988	ND
24	" "	D8460	1988	ND
25	D79122/D797	D8475	1988	ND
26	D7984/D7926/D7982/D79155	D8479	1988	ND
27	D78114/D78181	D84130*	1988	ND
28	D78144/D78172	D84134*	1988	ND

*   Denotes semidwarf entries.

WESTERN REGIONAL DURUM NURSERY

LIST OF ENTRIES

Aldura	PBS 02105
Carc "S"	PBS 02120
Durox	PSB 03113
Lloyd	PSB 03429
Stockholm	T 83138
Titan	TL 801045
Vic 1A	TL 801065
Waid	TL 820100
Westbred 881	TL 820112
Yavaros	UC 606
YGA "S"	UC 640
FLD 87050	UC 642
FLD 87336	UC 686
ND 80269	UC 714
NK 859615	WPB 884206

METHODS

The methods used in the testing of the samples were essentially the same as given in the last report.

Briefly, the following methods and terminologies were applied:

Test Weight Per Bushel - The weight per Winchester bushel of dockage-free wheat.

Thousand Kernel Weight - The 1000 kernel weight was determined by counting the number of kernels in a 10 g sample of cleaned, picked wheat on a Seedburo seed counter5/.

Kernel Size - The percentage of the size of the kernels [large, medium, and small] was determined on a wheat sizer as described by Shuey6/.

The sieves of the sizer were clothed as follows:

        Top Sieve   - Tyler # 7 with 2.92 mm opening
        Middle Sieve - Tyler # 9 with 2.24 mm opening
        Bottom Sieve - Tyler #12 with 1.65 mm opening

Protein Content - Both the Kjeldahl procedure and the near infrared technique were used to determine protein content. Nitrogen values, as determined by the Kjeldahl procedure, were multiplied by 5.7 to calculate protein values.

Hardness Test - The procedure used requires grinding the wheat samples with a UDY grinder, and obtaining data from a Technicon 400 near infrared analyzer. Wavelengths used were 1680 nm and 2230 nm. This procedure was developed by Mr. Karl Norris, USDA, Beltsville through a collaborative research project in which this Laboratory also participated. This procedure is not official and may be replaced with another in the

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5/ Mention of a trademark name or proprietary product does not constitute a guarantee or warranty of the product by the U. S. Department of Agriculture, and does not imply its approval to the exclusion of other products that may also be suitable.

6/ Shuey, William C. A wheat sizing technique for predicting flour milling yield. Cereal Sci. Today 5:71 (1960).

future. Durum wheat hardness scores for the 1988 crop
ranged from a low of 67 to a high of 137 with an average
of 106.6.

Milling - All samples were cleaned by passing the wheat
through an Emerson kicker and dockage tester and through
a modified Forster scourer Model 6. The clean, dry wheat
from the larger 2 kg samples was tempered in three stat-
ges: first to 12.5% moisture at least 72 hours prior to
the second stage which is to add an additional 2.0% for
18 hours to give a cumulative moisture of 14.5%, then a
final temper of 3.0%, 45 minutes prior to milling. The
smaller 200 gram samples were pretempered to 12.5%
moisture for at least 72 hours. They were then tempered
to 16.5% moisture and allowed to stand overnight prior
to milling.

The large field plot, special and advanced samples
were milled on a Buhler experimental mill specially
designed for milling durum wheat. The mill is equipped
with corrugated rolls throughout, and the semolina is
purified on a Miag laboratory purifier. All of the
stock is handled pneumatically. The mill flow is shown
on page 10. Quality testing is done using this purified
semolina. The semolina extraction was calculated on a
total products basis. Prior to milling this year's
samples, the Buhler mill and purifiers were adjusted to
maximize semolina yield, yet keep the speck count to an
acceptable level.

The small samples were milled on a Brabender Quadrumat
Jr. mill. The flow diagram of this system is shown on
page 11. The unpurified semolina was rebolted on a
strand sifter equipped with a #35 tyler sieve. The
sample was sifted for 30 seconds. The throughs of the
#35 tyler sieve were classified as rebolted semolina.
The overs of the #35 tyler sieve were reground and sieved
again for 30 seconds. The throughs were combined with
the first sieving. This was the material tested. The
overs of the #35 tyler sieve were classified as crude
shorts, and the overs of the rotating #34 wire sieve
were classified as bran.

Semolina Extraction - For both the macro and micro
method of milling, the percent semolina extraction was
calculated on a total product basis.

Speck Count - The number of specks in three different
one-inch square areas of semolina enclosed by a special
glass and frame were counted. Any materials other than
pure endosperm chunks, such as bran particles, etc. were

considered specks. The average of three readings was converted to the number of specks per 10 sq in (speck count). Speck count is done only on the macro milled samples.

Mixograph Analysis - The mixogram was determined by using 10 g of semolina and adding 5.7 cc of water. All mixograms were run with constant weights of semolina and volume of water.

Mixogram Pattern - The reference mixogram patterns given at the end of the report demonstrate the different types of mixograms that were obtained. A single number is assigned each pattern to characterize the classification of the curves - - - the large number indicating stronger curve characteristics.

Color Score - The color of the spaghetti or semolina has been generally accepted as the most important single grading factor. A deep amber or golden color is the most preferable. The amount of yellow pigmentation determines the color.

Cooked Weight - After cooking the 10 g of spaghetti for 12 minutes, the samples were washed thoroughly with distilled water and allowed to drain in a buchner funnel for 2 minutes. The sample was then weighed, and this weight is recorded as the cooked weight.

FLOW DIAGRAM FOR LARGE DURUM WHEAT SAMPLES
MACRO PROCEDURE
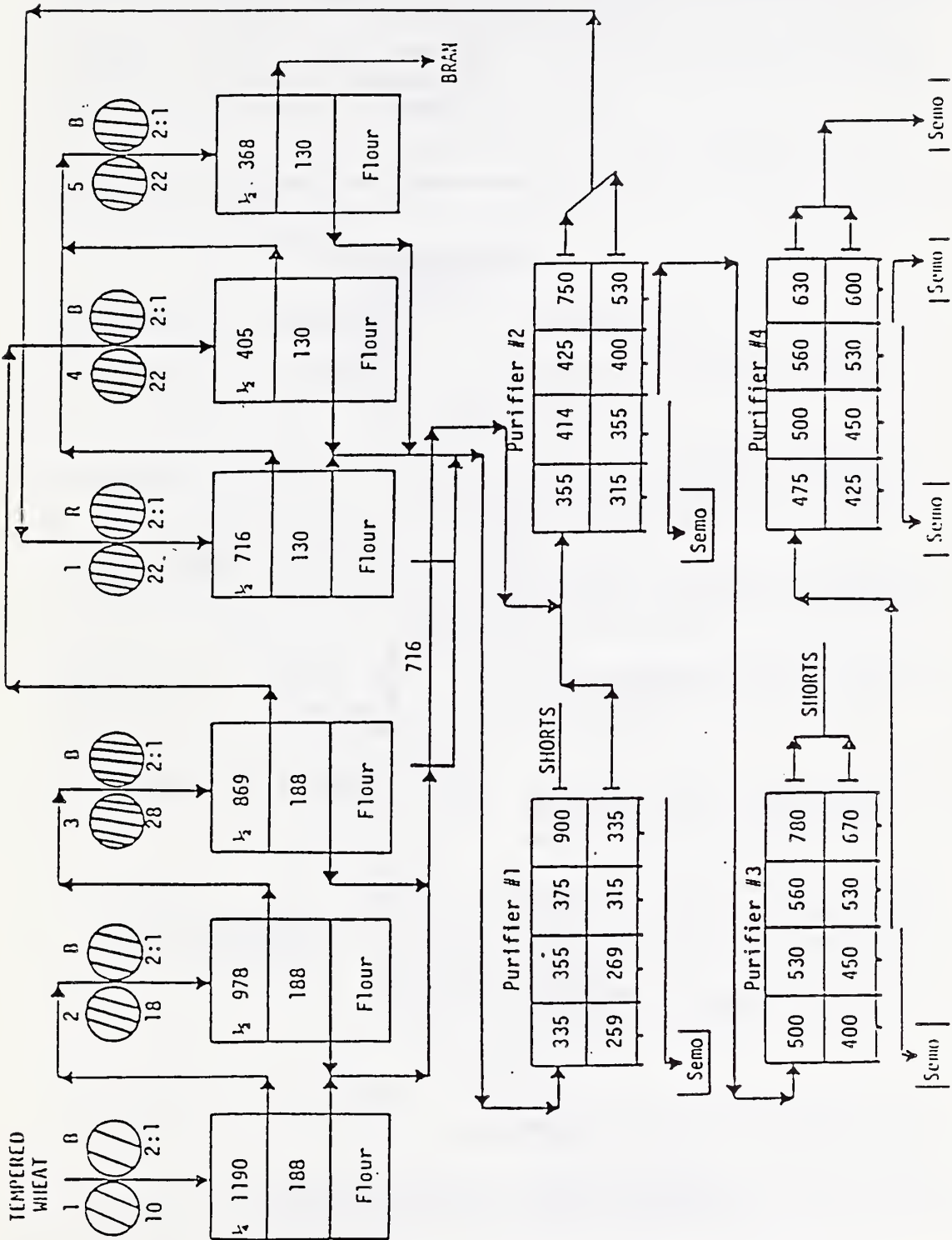
FLOW DIAGRAM FOR SMALL DURUM WHEAT SAMPLES
MICRO PROCEDURE

TEMPERED
WHEAT

No. 1 ROLL ⟶

←NO. 1 ROLL

NO. 2 ROLL ⟶

← NO. 2 ROLL

← ROTATING DRUM
SIEVE NO. 34W

BRAN →

↓
SEMOLINA
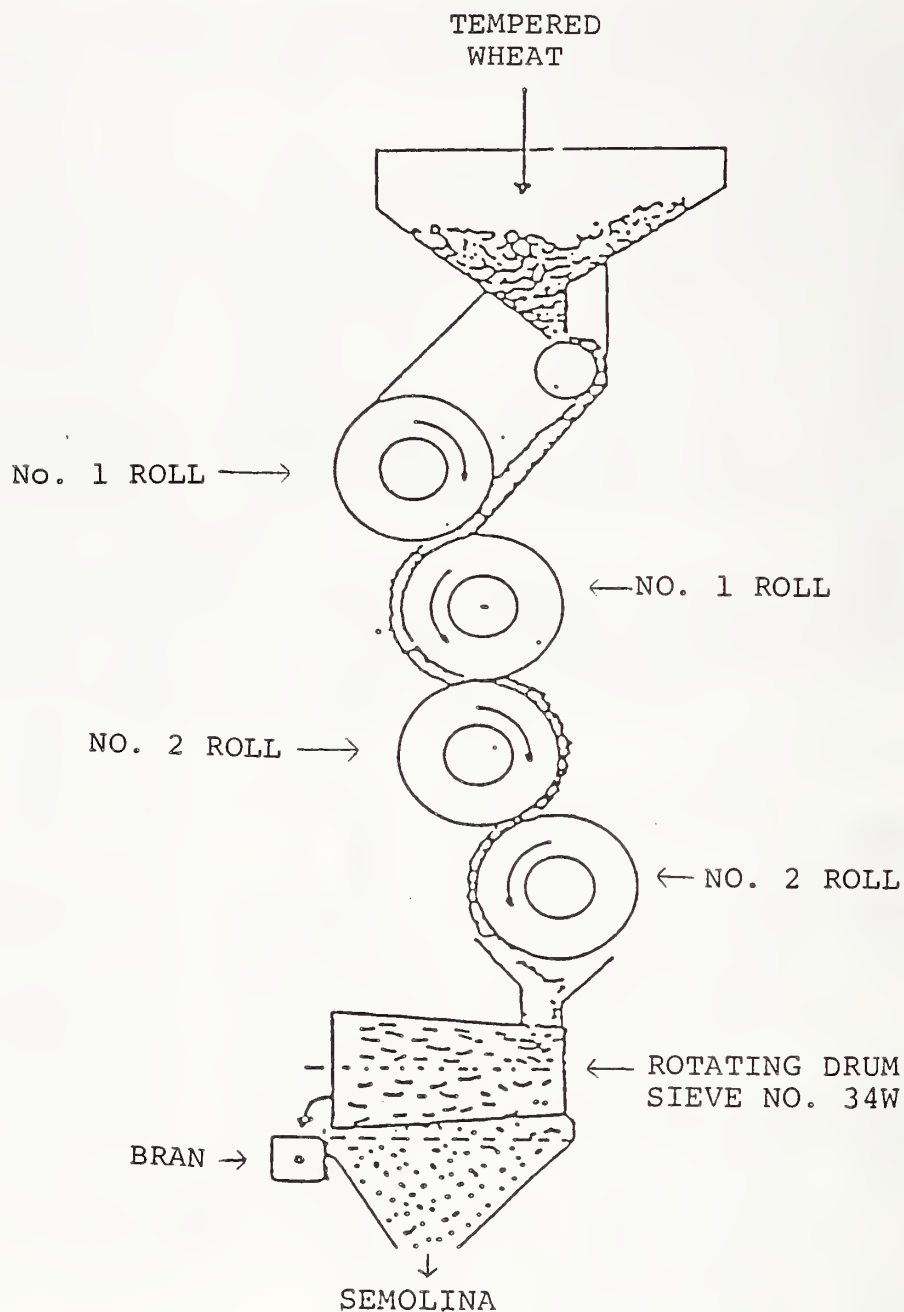
REBOLTED ON A STRAND SIFTER
EQUIPPED WITH A #35 TYLER SIEVE

Samples which have a color rating 1.5 point below the standard spaghetti score or 15 points below the standard semolina color score are unsatisfactory. It is possible that the average color score for a crop year may be higher or lower than average; therefore, this would be taken into consideration when giving the overall rating of a variety over a number of years.

The grading system shown below has been adopted for scoring the semolina color and spaghetti relative to the standard color score.

COLOR SCORE

Semolina	Spaghetti	Description
15 above	1.5 above	Much deeper and intense yellow pigmentation than standard
10 above	1.0 above	Deeper and more intense yellow pigmentation than standard
5 above	0.5 above	Slightly deeper and more intense yellow pigmentation than standard
Equal to Standard	Equal to Standard	Standard quality, depth and intensity of yellow pigmentation
5 below	0.5 below	Slightly less depth and intensity, but sufficient quantity of pigmentation
10 below	1.0 below	Slightly less quantity as well as depth and intensity of pigmentation than the standard, but still sufficient to be rated satisfactory on the basis of color
15 below	1.5 below	Sufficiently less quantity of yellow pigmentation than the standard to give a pale yellow color and graded unsatisfactory for color score.

Semolina Color Score - The semolina color score was determined by using Model D25M-9 Hunterlab tristimulus colorimeter equipped with an optical sensor and a signal processor. The instrument was calibrated using a yellow standard tile with Hunter L, a, b values of L = 77.33, a = -1.91, b = 20.94. A sample of semolina was placed in a cell normally used for near infrared analysis of flour in a Technicon 400 Infra Analyzer. This cell fits in the opening of the optical sensor. The b value was converted to a yellow color score ranging from 1-14, with 14 being a deep yellow and the most desirable color. In this report, the semolina color score, reported as "Du" in the tables, is multiplied by a factor of 10.

Spaghetti Color - The spaghetti color scores also were measured in the Model D25M-9 colorimeter. The specimen area (2 inches in diameter) was covered with straight spaghetti strands and readings were taken against a black background with 0% reflectance. Color difference values (L%, a% and b%) were measured for all the spaghetti samples by the method of Walsh, Gilles and Shuey[7]. A uniform chromaticity chart was used for determining spaghetti color scores.

MACRO Spaghetti Processing - Spaghetti was processed on a semi-commercial scale pasta extruder (DEMACO). The control as well as all samples was processed with the following extruding conditions.

Temperature . . . . 49.5°C

Rate . . . . 12 rpm

Absorption 32.5%

Vacuum . . . . . . 18 in Hg

These were the optimum conditions for processing spaghetti.

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[7] Walsh, D. E., Gilles, K. A. and Shuey, W. C. Color determination of spaghetti by the tristimulus method. Cereal Chem. 46:7 (1969).

To process the spaghetti, a 1000 g batch was premixed
by slowly adding the water and mixing at a slow speed for
approximately 30 seconds and high speed for 10 seconds.
Then the remainder of the water was added at slow speed
in a Hobart C-100-T mixer equipped with a pastry knife
agitator. After all of the water had been added, the
semolina and water were blended at high speed for 30
seconds; the mixer was stopped to scrape down the sides
of the bowl, and the blending continued for 90 seconds
more to complete the premix stage. The premixed pasta
was then transferred to the vacuum mixer of the press
and extruded through an 84-strand 0.043 in. Teflon
spaghetti die. A jacketed extension tube (9¼" long x
1-3/4" inside diameter) was attached to the semi-
commercial pasta extruder to allow a longer time for
hydration of the semolina and minimize the number of
white specks (unhydrated semolina) in the spaghetti.
Extrusion temperature was controlled by a circulating
water bath.

Spaghetti Drying - Spaghetti was dried in an experimen-
tal pasta dryer for an 18 hour, computer controlled
cycle. The drying cycle was a modification of that
described by Gilles, Sibbitt and Shuey[8]. During the
drying period, the humidity of the dryer was·decreased
linearly from 95 to 50% R.H. and the temperature was held
at 40°C for the first 10 hour and was then decreased
linearly from 40°C - 25°C during the last 8 hours of the
cycle.

8/ Gilles, K. A., Sibbitt, L. D. and Shuey, W. C.
Automatic laboratory dryer for macaroni products.
Cereal Sci. Today 11:322 (1966).

Cooking Characteristics of Spaghetti

A. Cooking Procedure

Spaghetti (10 g) which had been broken into
lengths of approximately 5 cm, was placed into
300 ml of boiling water in a 500 ml beaker.
After 12 minutes cooking, the samples were
washed thoroughly with distilled water in a
Buchner funnel, allowed to drain for 2 minutes
and then weighed to determine cooked weight.

B. Firmness Score

Two strands of cooked spaghetti were placed on a
plexiglass plate and sheared at a 90° angle with
a special plexiglass tooth. A continuous
recording of distance versus force was made by
the instrument during the operation. An automa-
tic integrator was used to calculate the area
under the curve (g-cm) which was the amount of
work required to shear the cooked spaghetti. To
measure firmness, the average of three integra-
tor scores was used, and the average work to
shear was used as a measure of spaghetti firm-
ness.

Calculations were as follows:

$E = 0.0216 \times A$ (g-cm)
  A = Average integrator reading
  E = Area of curve expressed as g-cm (work)

The higher the value, the firmer the spaghetti.
A value of approximately 7.00 appears to be
preferred.

C. Residue

This is the weight of the solids remaining after
the combined cooking and washing water was eva-
porated.

DISCUSSION

The following discussion represents some of the basic
techniques and criteria used in the milling and cooking
quality evaluation of durum wheat samples. Several testing
factors are used to determine the overall quality charac-
teristics or final evaluation of a particular sample
including, in general, the kernel characteristics, milling
performance and cooking performance.

Each evaluation factor can be important. A sample could
be of sufficiently poor quality for a given factor to eli-
minate it from possible future testing. However, a sample
submitted for the first time and found to show little pro-
mise should be tested again to establish if it has some good
promise, or no promise. A sample which is consistently
rated as little promise or no promise should be discontinued.

Data presented in this report were processed by using
the Statistical Analysis System (SAS Institute, Inc., SAS
Circle, Box 8000, Cary, NC 27511). The program developed
from this system allows flexibility within the quality
grading factors. This should allow us to relate more
directly to industry and consumer requirements.[9]

In this evaluation system 11 dependent variables are used.
These are test weight, 1000 kernel weight, percent small
kernels, wheat protein, total extraction, semolina extrac-
tion, dust color, speck count, semolina protein, spaghetti
visual color score and spaghetti firmness score. Seven
additional variables are measured and included in the
tables for the reader's use and information but are not used
in the computerized evaluation of the samples. These are
percent large kernels, hardness, mixograph score, semolina
ash, falling number, cooked weight and cooking residue.

After computing an average of each of the 11 variables for
the standards from a station or nursery, the computer sub-
tracts established values from each of the standard averages
to determine major (MJ) and minor (MI) faulting limits.
There are two exceptions where precise values have been
assigned, which are independent of the station standards.
The first exception is wheat protein, where percentages
below 11.5% will be classified as MJ faults, and percentages
between 11.5% - 12.5% will be MI faults (14% m.b.). The
second exception is semolina protein, where percentages
below 11.0% are classified as MJ faults, and percentages
between 11.0 and 11.5% are classified as MI faults (14%
m.b.). Hence, the wheat and semolina protein faulting
values remain the same for all stations and nurseries.

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[9] Nolte, L.L., Youngs, V.L., Crawford, R.D. and Kunerth,
W.H. 1985. Computer program evaluation of hard red
spring wheat. Cereal Foods World 30:227-229.

SELECTION OF STANDARDS

Whenever possible, the standards selected were named
varieties grown at each location or in each nursery. In the
tables of data, the varieties used as standards are iden-
tified by an "s" in the second column. At the bottom of
each table are cited "average of standards". Quality
deviation from these values determine the major and minor
faults (note preceding paragraph). In nurseries where
breeders did not grow named varieties, standard quality data
were obtained from the 1988 North Dakota standard ('Vic'),
which was processed separately with each nursery. This
standard was grown in North Dakota, not at the particular
nursery location. Other deviations are footnoted in the
tables.

HOW SAMPLES ARE SCORED

Each sample is assigned an evaluation score of 4. Major
and minor faults determined from the data by the computer
will reduce this score, depending upon the quality factor
being faulted. The effects of the different quality faults
are shown in the table which follows:

DURUM PROGRAM FAULTING AND SCORING VALUES

Variable	Range[a]		Effect on Evaluation Score[b]	
	Minor fault	Major fault	Minor fault	Major fault
Test Wt. (lb/bu)	-2.2	-3.1	-	-1
1000 KWT (g)	-2.1	-5.1	-	-1
Small Kernels (%)	+5	+10	-	-1
Wheat Prot. (%)	12.5	11.5	-1	-2
Tot. Ext. (%)	-2.5	-3.5	-1	-2
Semo. Ext.(%)	-3.0	-4.0	-1	-2
Dust color	-10	-15	-2	-3
Specks/10 sq. in.	+10	+15	-	-1
Semo. Prot. (%)	11.5	11.0	-1	-2
Visual Spag. color	-1.0	-1.5	-2	-3
Firmness (g cm)	-1.5	-2.25	-1	-2

[a] Wheat and semolina protein percents are fixed lower
   limits for faults. All other values represent the
   deviation from the average of the standards required to
   warrant a minor or major fault.

[b] These values are subtracted from a beginning score of 4.

EXPERIMENTAL RESULTS - 1988 CROP

The results are tabulated and presented in the following
order: Tables 1-10, Uniform Regional Nursery; Table 11,
Western Durum Nursery; Tables 12-14, Field Plot Nursery;
Tables 15-16, Special Nursery; Tables 17-21, Advanced Nursery.

UNIFORM REGIONAL NURSERY

Two hundred eighty-eight samples were received from ten sta-
tions in four states. Twenty-eight samples were received from
eight stations, and thirty-three samples were received from two
stations. Twelve of these samples were named varieties from
eight stations and thirteen named varieties were from two
stations. The remainder were experimental lines. The word
descriptions of these numerical scores are as follows:
1-1.4, no promise; 1.5-2.4, little promise; 2.5-3.4, some
promise; 3.5-4.0, good promise. The discussion which
follows is based on averaged data from the nine stations.
The samples from Sidney, Montana were not included in the
following discussion due to the small amount of sample.

Fjord (4.0 - 11/2)10/ (3 years) - Good promise.

Faults (1988 crop only)

  Kernel Characteristics - Small kernels.

  Milling Performance - Satisfactory.

Laker (2.6 - 12/2) (3 years) - Some promise.

This variety was grown in 1987 at only two locations.
Morris and Crookston, Minnesota.

Faults (1988 crop only)

  Kernel Characteristics - 1000 KWT.

  Milling Performance - Dust color.

10/ (Average General Evaluation - Number of Total Deficien-
     cies/Major Deficiencies)

Lloyd (4.0 - 18/7) (3 years) - Good promise.

Faults (1988 crop only)

  Kernel Characteristics - Test weight, 1000 KWT.

  Milling Performance - Semolina extraction.

Medora (4.0 - 10/3) (3 years) - Good promise.

Faults (1988 crop only)

  Kernel Characteristics - 1000 KWT, small kernels.

  Milling Performance - Semolina extraction.

Mindum (1.5 - 39/21) (3 years) - Little promise.

Faults (1988 crop only)

  Kernel Characteristics - 1000 KWT.

  Milling Performance - Dust color.

Monroe (4.0 - 3/1) (3 years) - Good promise.

Faults (1988 crop only)

  Kernel Characteristics - Satisfactory.

  Milling Performance - Semolina extraction.

Renville (4.0 - 17/1) (3 years) - Good promise.

Faults (1988 crop only)

  Kernel Characteristics - 1000 KWT, small kernels.

  Milling Performance - Satisfactory.

Rugby (4.0 - 14/1) (3 years) - Good promise.

Faults (1988 crop only)

  Kernel Characteristics - 1000 KWT.

  Milling Performance - Dust color.

Sceptre (3.6 - 25/6) (3 years) - Good promise.

Faults (1988 crop only)

   Kernel Characteristics - 1000 KWT.

   Milling Performance - Semolina extraction.

Stoa (1.0 - 19/17) (3 years) - No promise.

Faults (1988 crop only)

   Kernel Characteristics - 1000 KWT, small kernels.

   Milling Performance - Dust color.

Stockholm (3.3 - 26/8) (3 years) - Some promise.

Faults (1988 crop only)

   Kernel Characteristics - 1000 KWT, small kernels.

   Milling Performance - Wheat protein.

Vic (4.0 - 1/1) (3 years) - Good promise.

Faults (1988 crop only)

   Kernel Characteristics - Test weight.

   Milling Performance - Satisfactory.

Ward (3.7 - 18/4) (3 years) - Good promise.

Faults (1988 crop only)

   Kernel Characteristics - 1000 KWT.

   Milling Performance - Semolina extraction.

FA 883-323 (3.9 - 6/1) (3 years) - Good promise.

Faults (1988 crop only)

   Kernel Characteristics - 1000 KWT.

   Milling Performance - Satisfactory.

D8261 (3.5 - 18/4) (3 years) - Good promise.

Faults (1988 crop only)

   Kernel Characteristics - 1000 KWT.

   Milling Performance - Satisfactory.

D8291 (3.3 - 30/15) (3 years) - Some promise.

Faults (1988 crop only)

   Kernel Characteristics - 1000 KWT, small kernels, test weight.

   Milling Performance - Satisfactory.

D8302 (3.8 - 10/1) (2 years) - Good promise.

Faults (1988 crop only)

   Kernel Characteristics - 1000 KWT, small kernels.

   Milling Performance - Satisfactory.

D8370 (2.6 - 28/18) (2 years) - Some promise.

Faults (1988 crop only)

   Kernel Characteristics - 1000 KWT, small kernels, test weight.

   Milling Performance - Semolina extraction.

D8374 (3.8 - 7/1) (2 years) - Good promise.

Faults (1988 crop only)

   Kernel Characteristics - 1000 KWT.

   Milling Performance - Satisfactory.

D8380 (3.5 - 22/3) (2 years) - Good promise.

Faults (1988 crop)

   Kernel Characteristics - 1000 KWT, small kernels, wheat protein.

   Milling Performance - Semolina extraction, dust color.

- 22 -

D8434 (3.2 - 4/1) (1 year) - Some promise.

Faults (1988 crop)

   Kernel Characteristics - 1000 KWT.

   Milling Performance - Dust color.

D8458 (4.0 - 7/0) (1 year) - Good promise.

Faults (1988 crop)

   Kernel Characteristics - 1000 KWT, test weight.

   Milling Performance - Satisfactory.

D8459 (3.9 - 8/1) (1 year) - Good promise.

Faults (1988 crop)

   Kernel Characteristics - 1000 KWT, test weight.

   Milling Performance - Satisfactory.

D8460 (4.0 - 5/0) (1 year) - Good promise.

Faults (1988 crop only)

   Kernel Characteristics - 1000 KWT.

   Milling Performance - Satisfactory.

D8475 (3.8 - 3/1) (1 year) - Good promise.

Faults (1988 crop only)

   Kernel Characteristics - 1000 KWT.

   Milling Performance - Semolina Extraction.

D8479 (3.7 - 4/2) (1 year) - Good promise.

Faults (1988 crop only)

   Kernel Characteristics - 1000 KWT.

   Milling Performance - Semolina extraction.

D83103 (3.9 - 3/0) (1 year) - Good promise.

Faults (1988 crop only)

  Kernel Characteristics - 1000 KWT.

  Milling Performance - Semolina extraction.

D84130 (3.5 - 3/2) (1 year) - Good promise.

Faults (1988 crop only)

  Kernel Characteristics - 1000 KWT.

  Milling Performance - Semolina extraction.

D84134 (3.2 - 11/4) (1 year) - Some promise.

Faults (1988 crop)

  Kernel Characteristics - 1000 KWT, small kernels.

  Milling Performance - Semolina extraction.

29A (3.5 - 1/1) (1 year) - Some promise.

This variety was grown at only two locations. Morris and Crookston, Minnesota.

Faults (1988 crop only)

  Kernel Characteristics - 1000 KWT.

  Milling Performance - Satisfactory.

29B (4.0 - 1/0) (1 year) - Good promise.

This variety was grown at only two locations. Morris and Crookston, Minnesota.

Faults (1988 crop only)

  Kernel Characteristics - 1000 KWT.

  Milling Performance - Satisfactory.

29C (3.0 - 1/1) (1 year) - Some promise.

This variety was grown at only two locations. Morris and Crookston, Minnesota.

Faults (1988 crop only)

  Kernel Characteristics - Satisfactory.

  Milling Performance - Dust color.

WESTERN DURUM NURSERY

Hermiston, Oregon - Table 11

Thirty samples were received from one station. All analyses
were done the same as for the Uniform Regional Nursery using
our micro procedure. Aldura and Westbred 881 were used as
the standards. The average general score was 2.5. Dust color
was the main deficiency.

FIELD PLOT NURSERY

Minot and Langdon, North Dakota and Tucson, Arizona - Tables 12-14

Fifteen samples were received from these three stations;
all were named varieties except one station which had an
experimental line along with five named varieties. All
samples were milled, and the semolina was processed into
spaghetti using our macro method. Vic was used as the stan-
dard for the two locations in North Dakota. Aldura and
Westbred 881 were used as the standards from the Tucson
location.

SPECIAL NURSERY

Casa Grande, Arizona and Pendleton, Oregon - Tables 15-16

Eleven samples were received from these two stations. The
two samples from Casa Grande were named varieties. These
samples were milled, and the semolina was processed into
spaghetti using our macro method. Vic was used as the
standard for this station.

The Pendleton station had one named variety which was used
as the standard for that station, and eight experimental
lines. The samples from this station were analyzed using
the micro procedure.

ADVANCED NURSERY

A total of 191 samples were received from four stations in one state. All samples were milled, and the semolina was processed into spaghetti using our macro method.

Imperial Valley, California - Table 17

Forty-one samples were received from this station. Aldura, Yavaros and Mexicali were used as the standards. The average general score for this station was 2.0.

Kings County, California - Table 18

Thirty-four samples were received from this station. Aldura, Yavaros and Mexicali were used as the standards. The average general score for this station was 2.4.

Delta area, California - Table 19

Thirty-five samples were received from this station. Aldura, Yavaros and Mexicali were used as the standards. The average general score for this station was 2.9.

Imperial Valley, California - Table 20

Forty-seven samples were received from this station. Mexicali was used as the standard. The average general score for this station was 2.5.

Davis Valley, California - Table 21

Thirty-four samples were received in this station. Aldura, Yavaros, and Mexicali were used as the standards. The average general score for this station was 2.0.

EXPLANATION OF ABBREVIATIONS
LISTED UNDER THE HEADINGS AND UNDER
MINOR AND MAJOR DEFICIENCIES IN TABLES

MINOR AND MAJOR DEFICIENCIES ON COMPUTER PRINTOUT

S or STD = Standard
TW = Test Weight

1000 KWT or KW = 1000 Kernel Weight
LG = % Large Kernels
SM = % Small Kernels

WHT ASH = Wheat Ash
WHT PRO or WP = Wheat Protein
HRD = Hardness
TOTL EXTR or TX = Total Extraction (Semolina Plus
                 Flour)
SEMO EXTR or SX = Semolina Extraction
DU = Semolina Dust Color Score (High
            score is more desirable)

MX = Mixograph Score (The higher the number, the
       stronger the curve)
SPK or SK = Semolina Speck Count
SEMO ASH = Semolina Ash

FALL NO = Semolina Falling Number Value (Values
           above 300 are desired)
SEMO PRO or SP = Semolina Protein

VI = Spaghetti Visual Color Score (The higher
       the score, the more desirable)
CWT = Cooked Weight
FIRM or FR = Cooked Spaghetti Firmness Score
               (Approx. 6.50 to 8.50 is the
               desirable range)

RES = Residue in Water of Cooked Spaghetti
SCORE = Sample Evaluation Number (Example 4 =
        Good Promise)

TABLE 1

QUALITY DATA OF DURUM SAMPLES   1988 CROP

STATE=SOUTH DAKOTA   STATION=DAY CO.   NURSERY=UNIFORM

VARIETY	STD	TEST WT	1000 K.WT	% LG	% SM	WHT PRO	HARD NESS	SEMO EXTR	DUST COLOR	MIXO SCR	SCORE ***	DEF TW	DEF KW	DEF SM	DEF WP	DEF SX	DEF DU
FJORD		55.2	26.0	2	31	18.8	112	45.8	90	4	4						
LLOYD	S	55.6	27.2	5	22	18.8	109	49.6	85	4	4	MI					
MEDORA		54.1	24.5	0	36	18.0	108	47.0	85	8	3		MI			MJ	
MINDUM		53.9	24.6	2	24	19.1	109	46.0	85	8	4		MI			MJ	
MONROE		55.5	29.2	5	19	18.9	110	46.8	95	8	4						
RENVILLE		54.6	26.0	3	22	18.2	108	48.1	90	8	4			MI			
RUGBY		54.3	24.9	1	27	17.9	89	51.4	65	5	1					MJ	
SCEPTRE		53.6	23.3	2	25	19.4	112	44.2	85	8	3	MI				MJ	
STOA		56.3	23.9	2	28	17.7	114	50.0	35	5	1						
STOCKHOLM	S	56.3	22.7	2	32	19.0	130	45.1	85	4	4	MI	MI			MJ	
VIC	S	55.1	26.2	5	29	18.4	109	46.5	90	8	4	MI				MJ	
WARD	S	56.4	27.5	2	20	18.6	118	46.7	90	8	4		MI				
FA 883-32		55.7	24.0	1	25	18.1	117	46.5	85	7	4		MI		MI		
D 8261		55.2	25.4	3	27	18.6	114	45.2	85	8	4						
D 8291		55.8	27.6	2	22	18.1	115	47.2	90	7	4		MI			MI	
D 9302		56.3	29.1	3	17	18.0	113	47.9	85	7	4						
D 9370		56.5	25.6	1	23	18.6	116	44.2	85	4	3	MI	MI				
D 9374		56.0	27.4	2	19	19.0	112	49.1	85	4	3	MI					
D 8360		56.7	24.0	1	30	18.3	103	43.3	90	8	4	MI					
D 0434		57.2	24.8	1	23	18.4	118	52.8	85	7	4	MI	MI				
D 8458		56.4	26.2	1	19	18.9	118	46.5	85	7	4						
D 8459		56.7	24.8	1	19	17.4	118	51.6	85	6	4						
D 8460		55.1	30.9	3	19	19.1	110	47.9	90	8	4						
D 8475		55.8	25.3	2	22	18.7	112	42.3	85	5	2					MJ	
D 8479		55.8	27.6	4	22	18.3	117	44.4	85	8	4					MJ	
D 93103		55.2	26.6	7	17	18.7	110	43.7	80	4	3	MI				MI	
D 84130		57.4	27.0	4	16	18.8	119	43.1	85	8	2	MI				MJ	
D 84134		53.9	24.0	0	32	17.9	93	48.1	50	8	1	MI				MI	MJ

DEFICIENCIES	TW	KW	SM	WP	SX	DU
AVG OF STANDARDS	55.7	27.0	23	18.6	47.3	85
MINOR FAULTING VALUES	53.5	24.9	28	12.5	44.3	75
MAJOR FAULTING VALUES	52.6	21.9	33	11.5	43.3	70

*** EVALUATION 1=NO PROMISE, 2=LITTLE PROMISE, 3=SOME PROMISE, 4=GOOD PROMISE

TABLE 2

QUALITY DATA OF DURUM SAMPLES   1988 CROP

STATE=SOUTH DAKOTA   STATION=SELBY   NURSERY=UNIFORM

VARIETY	STD	TEST WT	1000 K.WT	% LG	SM	WHT PRO	HARD NESS	SEMO EXTR	DUST COLOR	MIXO SCR	SCORE ***	DEFICIENCIES TW KW SM WP SX DU
FJORD		60.0	35.7	23	4	15.8	112	53.7	90	7	4	
LLOYD	S	58.8	39.7	13	6	15.6	110	55.1	85	5	4	
MEDORA		58.4	32.2	5	7	16.8	122	48.0	80	4	2	MI MJ
MINDUM		60.2	33.7	9	3	16.4	111	51.3	60	2	1	
MONROE		59.1	39.5	26	3	15.9	113	61.7	85	5	4	
RENVILLE		59.5	31.9	2	12	16.0	109	55.7	80	4	4	MI MJ
RUGBY		60.3	32.7	7	7	16.5	117	57.1	75	2	4	MI
SCEPTRE		58.7	30.3	6	7	15.8	107	52.8	85	5	3	MJ
STOA		59.4	23.7	1	8	16.6	84	57.3	25	1	1	MJ MJ
STOCKHOLM		60.4	31.8	3	8	15.5	109	54.1	85	6	4	MI
VIC	S	59.9	35.1	10	4	16.3	115	54.7	85	4	4	MJ
WARD	S	59.9	31.7	7	7	16.6	122	50.6	80	2	4	MI
FA 883-32		59.9	35.2	6	6	15.7	112	56.5	90	4	4	
D 8261		59.7	35.6	10	5	15.8	109	60.7	85	7	4	
D 8291		58.7	32.7	3	12	15.6	107	56.3	90	6	4	MI MI
D 8302		58.7	31.2	1	14	15.8	116	51.7	90	5	4	MI MI
D 8370		59.2	26.7	0	22	15.2	103	51.3	80	4	2	MJ MJ
D 8374		60.6	36.0	9	8	15.6	102	55.2	85	6	4	
D 8380		60.6	31.6	3	11	15.1	110	54.0	90	6	4	MI MI
D 8434		60.4	35.7	9	8	15.4	119	55.6	75	3	4	
D 8458		58.2	31.5	3	12	15.8	100	55.2	85	5	4	MI MI
D 8459		59.0	31.3	4	9	16.1	112	51.8	85	6	4	MI
D 8460		59.2	31.6	5	10	15.9	109	54.3	90	6	4	MI
D 8475		60.7	32.9	5	8	15.6	116	52.0	85	7	4	MI
D 8479		59.4	33.7	9	8	15.4	115	55.8	85	7	4	
D 93103		59.0	33.3	5	7	15.5	110	53.7	95	6	4	MI
D 84130		60.6	29.3	3	8	15.9	104	51.0	95	6	3	MJ
D 84134		59.7	33.7	3	10	16.0	114	54.6	75	6	4	

DEFICIENCIES

	TW	KW	SM	WP	SX	DU
AVG OF STANDARDS	59.5	35.5	6	16.2	53.5	83
MINOR FAULTING VALUES	57.3	33.4	11	12.5	50.5	73
MAJOR FAULTING VALUES	56.4	30.4	16	11.5	49.5	68

*** EVALUATION 1=NO PROMISE, 2=LITTLE PROMISE, 3=SOME PROMISE, 4=GOOD PROMISE

VARIETY	STD	TEST WT	1000 K.WT	% LG	SM	WHT PRO	HARD NESS	SEMO EXTR	DUST COLOR	MIXO SCR	SCORE ***	DEFICIENCIES TW KW SM WP SX DU
FJORD		61.6	42.6	61	2	17.1	111	59.6	90	7	4	
LAKER		61.2	37.7	59	3	15.7	106	62.2	75	7	2	MI
LLOYD	S	60.9	37.6	51	3	16.1	106	61.3	90	6	4	MI
MEDORA		61.4	41.0	51	1	17.3	107	60.8	85	5	4	
MINDUM		62.2	39.2	43	2	16.5	107	61.6	85	3	1	MJ
MONROE		60.5	43.7	65	1	17.0	98	59.2	70	3	4	MJ
RENVILLE		61.4	41.2	46	1	17.8	109	61.3	80	4	4	
RUGBY		61.2	41.2	53	3	17.2	103	61.9	85	3	4	
SCEPTRE		61.0	37.5	47	2	16.8	110	63.1	90	5	4	
STOA		62.5	29.3	18	1	15.7	83	66.5	40	8	1	MI MJ
STOCKHOLM	S	62.0	43.5	43	1	16.4	106	59.4	85	6	4	MJ
VIC	S	61.4	41.7	54	2	16.7	107	59.0	85	5	4	
WARD		61.4	42.2	56	0	17.3	113	60.7	85	4	4	
FA 883-323		62.0	40.7	50	1	16.5	111	61.8	90	4	4	
9261		61.4	42.7	61	1	16.7	110	62.8	95	5	4	
8291-323		60.9	41.7	40	2	16.4	108	61.0	90	5	4	
8302		62.2	40.3	40	2	16.0	108	59.6	90	4	4	
3370		61.5	34.7	17	3	15.5	104	60.1	85	4	3	MJ
8374		61.7	44.2	46	3	15.7	104	61.9	85	4	4	
3380		62.4	39.7	36	4	16.0	111	62.3	90	5	4	
8434		62.2	43.3	51	2	16.3	106	58.1	80	3	4	
8458		61.6	39.7	49	1	16.5	107	63.3	85	4	4	
8459		62.2	39.7	41	3	16.4	106	61.4	90	4	4	MI
8460		61.0	39.1	43	3	16.5	106	63.1	90	4	4	
8475		61.3	41.3	46	0	16.9	113	58.4	85	5	4	
8479		61.9	44.6	59	2	15.9	112	60.0	85	6	4	
83103		61.3	43.1	59	2	16.4	109	59.7	90	6	4	
84130		62.3	43.1	49	3	16.4	116	60.6	85	6	4	
84130		60.6	35.5	35	3	16.8	105	58.1	95	6	4	MI
84134		60.6	39.2	46	2	17.1	114	60.0	95	3	4	
29A		61.7	39.2	46	2	17.1	114	60.0	95	3	4	MI
253		61.8	42.2	46	2	16.1	109	59.5	85	5	4	
29C		61.4	41.8	65	1	17.1	112	54.3	90	7	2	MJ

DEFICIENCIES

	TW	KW	SM	WP	SX	DU
AVG OF STANDARDS	61.2	40.5	2	16.7	60.3	87
MINOR FAULTING VALUES	59.0	38.4	7	12.5	57.3	77
MAJOR FAULTING VALUES	58.1	35.4	12	11.5	56.3	72

*** EVALUATION 1=NO PROMISE, 2=LITTLE PROMISE, 3=SOME PROMISE, 4=GOOD PROMISE

TABLE 4

QUALITY DATA OF DURUM SAMPLES   1988 CROP

STATE-MINNESOTA STATION-MORRIS NURSERY-UNIFORM

VARIETY STD	TEST WT	1000 K.WT KW	% LG SM	WP	WHT PRO	HARD NESS	SEMO EXTR	DUST COLOR	MIXO SCR	SCORE ***	DEFICIENCIES TW KW SM WP SX DU
FJORD	61.4	35.5	20	6	15.7	118	59.1	75	4	2	
LAKER	60.6	37.5	29	5	15.1	115	57.4	75	6	2	MI
LLOYD S	60.0	37.9	18	5	14.2	106	57.2	90	5	4	MI
MEDORA	60.9	35.0	13	5	15.8	119	54.0	90	5	4	
MINDUM	61.3	32.2	14	4	15.5	104	56.7	65	3	1	MI MJ
MONROE	59.7	39.1	19	7	15.6	106	58.8	85	5	4	
RENVILLE	61.5	34.2	11	7	15.0	111	61.9	80	5	4	
RUGBY	61.0	33.9	14	8	15.0	104	57.5	80	3	4	MI
SCEPTRE	60.0	32.4	12	6	16.1	105	57.7	80	4	4	MI MJ
STOA	60.1	22.2	3	11	14.3	72	61.6	35	1	1	MJ MI
STOCKHOLM S	60.0	32.6	8	2	14.3	104	59.3	85	8	4	MI MI
VIC S	50.9	37.6	19	4	15.2	113	57.4	85	5	3	MJ MJ
WARD	60.6	32.1	13	5	16.5	114	41.9	90	2	2	MI
FA 883-323	60.8	35.5	8	5	15.2	108	56.5	90	5	4	MI
D 8261	61.3	34.1	12	4	15.5	114	57.9	90	6	4	MI
D 8291-323	59.5	31.7	5	8	15.1	102	55.1	90	5	4	
D 8302	60.8	35.5	10	7	14.1	107	58.8	85	4	4	
D 8370	60.7	37.7	19	6	15.2	106	60.6	85	5	4	MI
D 8374	61.6	30.3	4	7	13.9	102	58.1	80	4	3	MI
D 8380	62.2	33.3	8	4	14.4	104	57.4	90	5	4	
D 8434	61.0	36.0	19	5	14.7	104	61.2	75	3	4	MI
D 8458	59.4	32.7	9	9	15.0	100	61.3	85	4	4	MI MI
D 8459	60.5	33.2	10	7	14.3	108	60.8	90	5	4	
D 8460	60.9	33.8	11	7	14.4	110	58.6	90	4	4	
D 8475	60.6	34.1	6	6	15.1	104	57.2	85	6	4	
D 8479	60.6	35.2	11	6	14.4	103	54.2	85	6	4	
D 83103	60.1	34.2	13	6	14.7	102	57.4	95	7	4	
D 84130	60.9	37.9	19	5	15.1	103	59.3	85	4	4	
D 84134	60.5	30.1	7	7	15.2	101	57.8	90	4	4	
29A	60.5	30.1	4	8	15.7	102	53.1	85	3	3	MJ MJ
29B	61.0	33.4	8	6	14.7	104	57.2	90	3	4	MJ MJ
29C	60.6	35.2	21	6	15.0	103	56.9	35	6	4	MI MI

DEFICIENCIES	TW	KW	SM	WP	SX	DU
AVG OF STANDARDS	57.2	35.9	5	15.3	52.2	87
MINOR FAULTING VALUES	55.0	33.8	10	12.5	49.2	77
MAJOR FAULTING VALUES	54.1	30.8	15	11.5	48.2	72

*** EVALUATION 1=NO PROMISE, 2=LITTLE PROMISE, 3=SOME PROMISE, 4=GOOD PROMISE

TABLE 5

QUALITY DATA OF DURUM SAMPLES   1980 CROP

STATE=MONTANA   STATION=BOZEMAN   NURSERY=UNIFORM

VARIETY	STD	TEST WT	1000 K.WT	% LG	% SM	WHT PRO	HARD NESS	SEMO EXTR	DUST COLOR	MIXO SCR	SCORE ***	DEF TW	DEF KW	DEF SM	DEF WP	DEF SX	DEF DU
FJORD		63.0	38.2	42	2	14.8	102	61.9	90	7	4						
LLOYD	S	61.8	39.7	30	1	13.0	104	63.1	95	6	4						
MEDORA		62.8	40.0	48	0	14.9	104	62.8	95	3	4						
MINDUM		62.6	37.9	35	0	14.6	99	64.0	75	2	1						MJ
MONROE		63.0	45.7	69	0	14.6	105	56.6	90	3	2					MJ	
RENVILLE		62.6	37.7	21	2	14.0	104	66.2	90	4	4		MI				
RUGBY		62.6	37.3	35	2	14.7	104	63.3	90	2	4		MI				
SCEPTRE		62.6	36.5	32	3	14.2	108	62.0	95	3	4		MI				
STOA		63.1	30.2	14	1	14.1	73	65.3	35	6	1		MJ				MJ
STOCKHOLM	S	63.0	39.4	21	2	12.0	107	61.1	95	5	3				MI		
VIC	S	62.6	42.2	46	2	14.1	102	61.4	90	2	4						
WARD		63.1	38.0	35	2	14.2	107	63.0	95	6	4						
FA 883-32		62.2	41.5	41	1	14.2	105	62.8	90	3	4						
D 8261		61.6	34.1	18	3	14.0	98	62.9	95	6	3		MJ				
D 8291		61.4	34.5	9	4	13.5	102	60.8	90	3	4		MJ				
D 8302		62.3	37.9	21	4	14.0	105	60.6	90	3	4						
D 8370		62.6	33.7	10	4	13.0	97	61.0	85	3	4		MJ				
D 8374		63.4	40.0	32	3	13.3	101	62.5	90	3	3						
D 8380		63.0	36.2	19	2	13.2	107	63.6	85	5	4		MI				
D 8434		63.5	42.7	39	1	13.0	107	63.7	85	5	4						
D 8458		62.2	35.2	23	3	14.0	97	65.7	90	3	4		MI				
D 8459		62.1	36.1	20	3	14.1	93	64.8	90	4	4		MI				
D 8460		63.3	35.5	22	3	14.0	105	64.2	90	4	4		MI				
D 8475		63.0	37.9	20	2	14.3	114	63.0	95	5	4						
D 8479		62.4	40.0	33	2	13.4	107	63.0	95	5	4						
D 83103		62.2	38.2	27	2	13.4	107	63.4	90	6	4						
D 84130		63.1	39.1	26	2	13.5	102	64.5	95	5	4						
D 84134		62.4	32.6	15	4	14.1	115	61.8	95	4	3		MJ				

DEFICIENCIES	TW	KW	SM	WP	SX	DU
AVG OF STANDARDS	62.5	40.0	2	13.8	62.5	93
MINOR FAULTING VALUES	60.3	37.9	7	12.5	59.5	83
MAJOR FAULTING VALUES	59.4	34.9	12	11.5	58.5	78

***EVALUATION 1=NO PROMISE, 2=LITTLE PROMISE, 3=SOME PROMISE, 4=GOOD PROMISE

QUALITY DATA OF DURUM SAMPLES   1988 CROP

TABLE 6

STATE=MONTANA   STATION=SIDNEY   NURSERY=UNIFORM

VARIETY STD	TEST WT	1000 K.WT	% LG	SM	WHT PRO	HARD NESS	SEMO EXTR	DUST COLOR	MIXO SCR	SCORE ***	DEFICIENCIES TW KW SM WP SX DU
FJORD	.	.	.	.	16.5	94	.	.	.	4	
LLOYD S	.	.	.	.	16.8	115	.	.	.	4	
MONROE	.	.	.	.	14.3	103	.	.	.	4	
REIVILLE	.	.	.	.	16.2	111	.	.	.	4	
RUGBY	.	.	.	.	17.4	109	.	.	.	4	
SCEPTRE	.	.	.	.	17.9	109	.	.	.	4	
STOA	.	.	.	.	16.2	84	.	.	.	4	
STOCKHOLM	.	.	.	.	16.4	112	.	.	.	4	
VIC	.	.	.	.	17.0	106	.	.	.	4	
WARD S	.	.	.	.	17.3	102	.	.	.	4	
FA 883-32	.	.	.	.	17.1	110	.	.	.	4	
D 8261	.	.	.	.	17.7	108	.	.	.	4	
D 8291	.	.	.	.	17.5	106	.	.	.	4	
D 8302	.	.	.	.	16.3	103	.	.	.	4	
D 8370	.	.	.	.	17.0	107	.	.	.	4	
D 8374	.	.	.	.	16.9	103	.	.	.	4	
D 8380	.	.	.	.	16.5	108	.	.	.	4	
D 8434	.	.	.	.	16.0	96	.	.	.	4	
D 8458	.	.	.	.	17.7	108	.	.	.	4	
D 8459	.	.	.	.	16.9	98	.	.	.	4	
D 8460	.	.	.	.	17.9	107	.	.	.	4	
D 8475	.	.	.	.	16.7	112	.	.	.	4	
D 8479	.	.	.	.	17.1	103	.	.	.	4	
D 33103	.	.	.	.	17.1	103	.	.	.	4	

DEFICIENCIES

	TW	KW	SM	WP	SX	DU
AVG OF STANDARDS						
MINOR FAULTING VALUES			17.0	12.5		
MAJOR FAULTING VALUES			11.5			

*** EVALUATION 1=NO PROMISE, 2=LITTLE PROMISE, 3=SOME PROMISE, 4=GOOD PROMISE

STATE=MONTANA   STATION=CONRAD   NURSERY=UNIFORM

TABLE 7

VARIETY STD	TEST WT	1000 K.WT	% LG/SM		WHT PRO	HARD NESS	SEMO EXTR	DUST COLOR	MIXO SCR	SCORE ***	DEFICIENCIES TW KW SM WP SX DU
FJORD	64.0	39.5	36	2	13.7	108	65.0	95	4	4	
LLOYD S	62.4	42.9	34	2	13.0	103	67.0	95	4	4	
MEDORA	63.8	41.7	48	2	14.3	108	66.0	90	3	4	
MINDUM	63.0	36.9	28	0	14.3	105	65.7	75	2	1	MI
MONROE	63.4	43.9	54	1	13.8	96	66.1	95	3	4	
RENVILLE	63.3	38.0	20	3	13.9	106	68.5	90	3	4	MI
RUGBY	64.0	37.7	30	2	14.1	103	65.7	90	2	4	MI
SCEPTRE	63.9	37.6	34	0	14.0	107	66.0	95	4	4	
STOA	62.4	29.1	14	3	13.7	73	68.2	40	6	1	MJ
STOCKHOLM	63.8	38.8	23	2	12.8	97	66.1	95	3	4	
VIC S	63.4	41.3	41	1	14.1	105	65.4	95	3	4	
WARD S	63.5	37.9	34	0	14.0	107	66.2	90	3	4	MI
FA 383-32	63.4	40.5	34	2	13.5	106	65.6	100	2	4	
D 8261	63.4	42.2	37	1	12.7	99	68.7	95	3	4	
D 8291	62.6	45.0	11	3	12.9	89	63.3	95	3	4	
D 8302	63.6	37.3	22	3	13.7	106	63.4	95	3	4	MI
D 8370	63.5	33.9	8	3	12.8	102	63.3	90	3	3	MJ
D 8374	63.8	39.5	27	2	12.9	104	64.2	95	3	4	
D 8380	63.8	38.9	21	1	12.4	103	65.0	100	3	3	
D 8434	63.9	40.8	30	3	13.7	111	63.6	85	3	4	MI
D 8458	62.4	38.6	33	2	13.9	105	65.3	100	4	4	
D8459	63.2	39.7	38	2	13.5	98	65.0	100	3	4	MI
D 8460	63.4	37.5	23	3	14.2	98	65.0	95	3	4	MI
D 8475	63.9	38.3	21	1	13.8	103	65.3	95	3	4	MI
D 8479	62.4	38.6	28	2	13.6	94	62.2	95	5	2	MI MJ
D 83103	63.4	39.8	28	1	13.2	91	64.8	95	4	4	MI MJ
D 34130	63.9	39.5	20	1	13.5	95	62.6	95	4	3	MI
D 84134	63.5	37.5	28	2	13.1	98	63.3	100	4	4	MI MI

	TW	KW	SM	WP	SX	DU
DEFICIENCIES						
AVG OF STANDARDS	63.1	40.9	1	13.7	66.2	93
MINOR FAULTING VALUES	60.9	38.8	6	12.5	63.2	83
MAJOR FAULTING VALUES	60.0	35.8	11	11.5	62.2	78

***EVALUATION 1=NO PROMISE, 2=LITTLE PROMISE, 3=SOME PROMISE, 4=GOOD PROMISE

TABLE 8

QUALITY DATA OF DURUM SAMPLES   1988 CROP
STATE=NORTH DAKOTA   STATION=WILLISTON   NURSERY=UNIFORM

VARIETY	STD	TEST WT	1000 K.WT	% LG	SM	WHT PRO	HARD NESS	SEMO EXTR	DUST COLOR	MIXO SCR	SCORE ***	DEFICIENCIES TW KW SM WP SX DU
FJORD		59.6	30.9	16	7	19.3	115	57.7	85	7	4	
LLOYD	S	58.5	31.9	6	7	18.8	116	59.3	90	7	4	
MEDORA		58.6	30.4	9	7	20.3	116	58.3	85	7	4	
MINDUM		.	27.9	.	.	20.1	95	.	.	.	4	MI
MONROE		58.5	32.4	13	4	19.8	118	59.8	80	8	4	
RENVILLE		57.4	27.2	2	12	19.6	120	61.2	85	8	4	MI
RUGBY		58.9	27.9	4	9	19.4	126	57.9	85	3	4	MI
SCEPTRE		58.4	27.0	8	8	20.5	126	57.3	85	8	4	MI
STOA		57.9	21.1	2	12	17.8	79	61.5	35	8	4	MJ MJ
STOCKHOLM		58.2	29.8	3	9	18.9	108	56.3	80	8	4	
VIC	S	58.4	30.9	6	8	19.3	122	58.2	85	7	4	MI MJ
WARD	S	58.2	27.5	5	10	19.7	109	51.9	85	8	2	MI MJ
FA 883-32		59.5	30.0	5	7	18.3	107	58.4	90	6	4	
D 8261		58.9	28.5	7	7	19.0	103	58.5	85	6	4	MI
D 8291		57.8	26.8	3	9	20.2	112	58.2	85	6	4	
D 8302		58.4	29.2	5	7	18.4	118	55.2	80	5	4	MI
D 8370		58.6	26.4	3	8	19.0	111	56.7	80	5	4	
D 8374		58.8	31.2	7	7	18.9	115	56.6	80	4	4	MI
D 8380		58.0	25.2	3	9	18.6	101	55.9	55	8	1	
D 8434		59.4	33.0	13	2	18.8	116	54.9	70	3	1	MI
D 8458		56.3	26.2	5	10	19.9	112	59.6	80	8	4	MI MI MJ MJ
D 8459		55.8	25.0	4	13	19.9	103	58.5	85	8	4	MI
D 8460		58.7	29.0	8	7	19.4	111	58.2	85	8	4	
D 8475		59.4	29.0	7	5	18.6	116	58.3	85	7	4	MI
D 8479		58.7	23.8	10	7	19.0	122	55.1	85	8	3	MJ MJ
D 83103		57.7	28.6	5	7	18.3	113	58.1	95	8	4	
D 84130		58.2	29.8	.	.	19.9	116	.	.	.	4	
D 84134		58.6	27.7	5	7	19.6	111	52.8	85	7	3	MI MI

	TW	KW	SM	WP	SX	DU
DEFICIENCIES						
AVG OF STANDARDS	58.4	30.1	8	19.3	56.5	87
MINOR FAULTING VALUES	56.2	28.0	13	12.5	53.5	77
MAJOR FAULTING VALUES	55.3	25.0	18	11.5	52.5	72

***EVALUATION 1=NO PROMISE, 2=LITTLE PROMISE, 3=SOME PROMISE, 4=GOOD PROMISE

TABLE 9

QUALITY DATA OF DURUM SAMPLES 1988 CROP
STATE=NORTH DAKOTA STATION=CARRINGTON NURSERY=UNIFORM

VARIETY	STD	TEST WT	1000 K.WT	% LG	SM	WHT PRO	HARD NESS	SEMO EXTR	DUST COLOR	MIXO SCR	SCORE ***	DEFICIENCIES TW KW SM WP SX DU
FJORD		61.1	37.9	46	3	15.3	110	61.6	95	6	4	
LLOYD	S	56.5	32.7	16	8	15.8	99	53.3	90	6	1	MJ MI · · MJ ·
MEDORA		61.1	36.5	38	5	15.8	105	62.1	90	5	4	
MINDUM		60.9	36.0	30	6	14.9	88	60.8	80	3	2	
MONROE		61.5	41.5	56	3	15.1	109	62.8	90	6	4	· MI · · · ·
RENVILLE		60.4	33.9	26	6	15.4	105	64.0	90	4	4	· · · · MI ·
RUGBY		61.8	36.8	36	6	15.4	110	61.9	90	2	3	
SCEPTRE		59.0	30.9	21	8	15.5	106	60.6	90	6	4	MJ · · · · ·
STOA		61.2	28.3	21	6	15.5	81	59.8	40	8	1	MJ · · · MJ ·
STOCKHOLM	S	59.4	32.5	13	9	15.1	95	59.0	85	7	4	MI · · · · ·
VIC		61.3	40.7	43	4	15.5	110	63.0	95	6	4	MI · · · · ·
WARD	S	61.3	36.1	38	5	15.2	106	60.1	95	3	4	
FA 883-32		61.0	39.5	38	5	15.1	105	61.7	85	6	4	MI · · · · ·
D 8261		58.1	33.9	26	6	15.2	102	60.4	90	6	4	MI MJ · · · ·
D 3291		56.8	30.4	10	10	15.5	88	58.1	90	6	3	MI MJ · · · ·
D 8302		59.9	33.7	23	8	15.3	102	58.9	90	5	4	MI · · · · ·
D 8370		56.5	26.2	6	36	15.2	103	56.2	85	5	1	MJ MJ MJ · · ·
D 8374		59.4	32.8	19	7	14.9	106	57.1	85	6	4	MJ MJ MJ · · ·
D 8380		58.6	31.6	8	10	14.9	93	60.0	90	5	4	MI MI · · · ·
D 8434		62.0	40.0	42	5	14.6	94	60.2	85	4	4	MI MI · · · ·
D 8458		58.8	39.1	16	7	15.5	95	62.8	95	5	4	MJ · · · · ·
D 8459		58.6	30.0	17	8	15.6	93	60.6	100	4	3	MJ · · · · ·
D 8460		59.7	32.4	21	7	15.7	95	60.8	85	6	4	MI · · · · ·
D 8475		62.4	38.3	28	4	14.8	100	63.9	100	5	4	MI · · · · ·
D 8479		58.0	33.8	23	6	15.5	96	59.5	85	6	4	MI · · · · ·
D 33103		58.0	33.3	17	7	15.0	96	60.5	90	6	4	MI · · · · ·
D 84130		59.0	38.2	16	8	15.0	97	59.3	90	4	4	MI · · · · ·
D 84134		59.0	28.6	9	10	14.5	86	59.1	90	4	3	MJ · · · · ·

DEFICIENCIES

	TW	KW	SM	WP	SX	DU
AVG OF STANDARDS	59.7	36.5	6	15.5	58.8	93
MINOR FAULTING VALUES	57.5	34.4	11	12.5	55.8	83
MAJOR FAULTING VALUES	56.6	31.4	16	11.5	54.8	78

***EVALUATION 1=NO PROMISE, 2=LITTLE PROMISE, 3=SOME PROMISE, 4=GOOD PROMISE

QUALITY DATA OF DURUM SAMPLES   1988 CROP

STATE=NORTH DAKOTA   STATION=PROSPER   NURSERY=UNIFORM

TABLE 10

VARIETY	STD	TEST WT	1000 K.WT	% LG	% SM	WHT PRO	HARD NESS	SEMO EXTR	DUST COLOR	MIXO SCR	SCORE ***	DEFICIENCIES TW KW SM WP SX DU
FJORD		61.6	40.0	50	1	15.6	109	62.0	85	6	4	
LLOYD	S	60.0	40.8	30	3	14.9	96	62.0	85	5	4	
MEDORA		60.7	33.7	14	3	15.8	112	63.4	90	4	4	MI (TW)
MINDUM		60.7	32.2	12	5	16.1	106	60.5	70	3	1	MI (TW) MJ (SX)
MONROE		60.7	41.0	44	1	15.4	104	62.9	85	4	4	
RENVILLE		61.6	37.2	15	4	16.2	110	65.3	85	4	4	
RUGBY		61.3	34.7	18	4	16.2	106	62.7	85	2	4	MI (TW)
SCEPTRE		61.0	35.5	27	3	15.6	104	62.4	85	4	4	MI (TW) MJ (DU)
STOA		61.1	25.8	4	3	15.0	72	66.5	30	8	1	MJ (TW) MJ (DU)
STOCKHOLM	S	62.2	38.0	15	2	14.7	102	63.4	90	5	4	
VIC	S	62.2	39.2	25	2	15.7	109	63.1	90	5	4	MI (TW)
WARD		61.8	36.0	19	3	16.1	113	61.9	90	2	4	
FA 883-32		61.3	39.2	27	2	15.6	114	64.5	90	5	4	
D 8261		62.0	38.2	34	2	15.2	103	65.3	90	5	4	MI (TW) MJ (KW)
D 8291		59.8	35.5	16	4	15.4	106	60.2	90	4	4	MI (TW)
D 8302		62.0	34.6	17	4	14.6	98	60.5	90	4	4	MI (TW) MI (KW)
D 8370		60.3	29.2	5	8	14.5	94	58.4	80	4	2	MJ (TW) MI (KW) MI (WP)
D 8374		61.9	38.8	20	3	15.4	107	64.0	85	4	4	MI (TW) MI (KW)
D 8380		62.1	36.1	17	4	15.1	104	62.8	95	4	4	
D 8434		62.1	39.8	37	1	15.2	110	60.2	75	3	2	MI (TW) MI (SX)
D 8458		60.2	36.1	19	3	15.3	101	63.0	85	5	4	
D 8459		60.3	34.5	15	4	15.6	97	63.3	95	5	4	MI (TW) MI (KW)
D 8460		60.3	35.2	17	3	15.4	101	63.0	95	5	4	
D 8475		62.0	37.2	13	2	15.1	94	63.7	95	6	4	
D 8479		60.7	38.2	27	2	14.7	104	61.2	85	6	4	
D 83103		61.3	39.8	25	3	14.7	90	62.3	90	6	4	
D 84130		61.6	40.2	32	1	15.9	102	64.5	85	5	4	MI (TW)
D 84134		61.8	36.1	16	2	15.5	101	60.9	90	5	4	

DEFICIENCIES	TW	KW	SM	WP	SX	DU
AVG OF STANDARDS	61.3	38.7	3	15.6	62.3	88
MINOR FAULTING VALUES	59.1	36.6	8	12.5	59.3	78
MAJOR FAULTING VALUES	58.2	33.6	13	11.5	58.3	73

***EVALUATION 1=NO PROMISE, 2=LITTLE PROMISE, 3=SOME PROMISE, 4=GOOD PROMISE

QUALITY DATA OF DURUM SAMPLES   1988 CROP

STATE=OREGON   STATION=HERMISTON   NURSERY=WESTERN REGIONAL DURUM

TABLE 11

VARIETY STD		TEST WT	1000 K.WT	% LG SM	SM	WHT PRO	HARD NESS	SEMO EXTR	DUST COLOR	MIXO SCR	SCORE ***	DEF TW	KW	SM	WP	SX	DU
ALDURA	S	62.0	44.1	65	0	15.3	107	62.6	90	2	4						MJ
CARC 'S'		61.7	42.9	69	0	14.8	112	63.6	60	3	1						MJ
DUROX		63.0	38.3	44	0	13.8	73	64.5	50	3	1						
LLOYD		59.5	39.2	35	0	15.3	101	63.1	90	4	4	MI	MI				
STOCKHOLM		63.1	45.0	56	0	14.7	98	65.6	85	4	4	MJ	MI				
TITAN		61.8	43.5	42	0	13.9	103	66.8	90	4	4						
VIC 1A		62.8	43.3	50	0	13.6	80	65.0	80	3	2						MI
WAID		61.0	37.7	26	0	14.7	101	63.9	80	2	1						MI
WPB 881		62.6	45.7	75	0	15.2	107	66.2	90	7	4		MI				MI
YAVAROS		64.3	47.4	71	0	14.5	102	62.7	70	3	1						MJ
YGA 'S'		63.6	43.5	67	1	14.5	102	66.0	70	4	1						MJ
FLD 87050		57.8	39.4	38	0	15.6	111	61.1	70	4	1		MI	MJ			MJ
FLD 87336		59.2	37.5	36	0	15.0	103	62.2	90	7	3	MJ	MI	MJ			MJ
ND 80269		64.4	53.5	91	0	14.7	100	63.8	80	5	2		MI	MI			MI
NK 859615		63.5	46.1	76	0	15.8	107	62.5	90	5	4						MI
PBS 02105		61.8	47.1	73	0	14.7	107	60.1	85	4	4						MJ
PBS 02120		62.0	42.0	39	0	13.9	81	61.9	70	4	1		MJ				
PBS 03113		61.4	46.5	73	0	15.0	101	63.1	90	5	4						MI
PBS 03429		60.1	40.3	50	0	15.2	109	61.0	80	5	2		MI				
T 83138		61.6	42.0	50	0	14.9	79	62.7	85	2	4						
TL 801045		63.1	44.8	73	0	14.4	93	62.0	75	1	1						MJ
TL 801065		62.2	43.3	57	0	15.2	99	62.4	75	3	1						MJ
TL 820100		59.8	44.2	56	0	15.4	104	63.7	80	3	2		MI				MJ
TL 820112		60.5	39.2	44	0	15.1	100	61.5	90	5	4						MI
UC 606		61.2	42.4	54	0	15.3	97	62.6	80	3	2						MI
UC 640		60.9	44.6	58	0	15.1	93	60.8	90	4	4						
UC 642		62.8	45.5	65	0	14.6	98	65.4	80	2	2						MI
UC 686		63.6	45.7	78	0	14.6	100	61.9	80	4	2						MI
UC 714		63.1	42.0	56	0	13.6	91	64.4	80	3	2						MI
WPB 884206		61.9	51.0	76	0	15.8	107	65.7	85	7	4						MI

DEFICIENCIES	TW	KW	SM	WP	SX	DU
AVG OF STANDARDS	62.0	44.1	0	15.3	62.6	90
MINOR FAULTING VALUES	59.8	42.0	5	12.5	59.6	80
MAJOR FAULTING VALUES	58.9	39.0	10	11.5	58.6	75

***EVALUATION 1=NO PROMISE, 2=LITTLE PROMISE, 3=SOME PROMISE, 4=GOOD PROMISE

QUALITY DATA OF DURUM SAMPLES   1988 CROP
STATE=NORTH DAKOTA STATION=MINOT NURSERY=FIELD PLOT

TABLE 12

----VARIETY-----	STD	TEST WT #/BU	1000 K.WT G.	SIZING LG %	SM %	WHT ASH %	WHT PRO %	HARD-NESS	FALL NO SEC	TOTL EXTR %	SEMO EXTR %	SEMO SPK	SEMO ASH %	DUST COLOR	MIXO SCORE
LLOYD		60.4	37.3	18	2	1.54	13.8	109	400	76.7	61.0	23	0.61	105	4
RUGBY		61.1	38.5	36	3	1.82	16.7	123	400	77.4	59.8	23	0.78	95	2
VIC	S	58.0	38.0	22	4	1.84	14.7	107	400	77.7	59.7	10	0.64	110	5
WARD		61.1	41.0	43	2	2.02	16.4	115	400	77.3	60.5	50	0.73	95	2

----VARIETY-----	STD	SEMO PRO COL %	VIS COL G.	COOK WT G.	FIRM-NESS RES G.	SCORE ***				-------DEFICIENCIES-------						
							TW	KW	SM	WP	TX	SX	DU	SK	SP	VI	FR
LLOYD		12.8	10.5	30.4	5.96	6.6	4						MI				MI	
RUGBY		15.9	10.0	31.6	5.27	6.7	1					MJ	MI				MI	
VIC	S	14.1	11.0	29.1	7.30	6.4	4											
WARD		15.6	10.0	31.7	5.44	6.2	1						MJ			MJ	MI	MI

DEFICIENCIES	TW	KW	SM	WP	TX	SX	DU	SK	SP	VI	FR
AVG OF STANDARDS	58.0	38.0	4	14.7	77.7	59.7	110	10	14.1	11.0	7.30
MINOR FAULTING VALUES	55.8	35.9	9	12.5	75.2	56.7	100	20	11.5	10.0	5.80
MAJOR FAULTING VALUES	54.9	32.9	14	11.5	74.2	55.7	95	25	11.0	9.5	5.05

*EVALUATION 1=NO PROMISE, 2=LITTLE PROMISE, 3=SOME PROMISE, 4=GOOD PROMISE

-----VARIETY-----	TEST WT #/BU	1000 K.WT G.	SIZING LG %	SIZING SM %	WHT ASH %	WHT PRO %	HARD-NESS SEC	FALL NO SEC	TOTL EXTR %	SEMO EXTR %	SEMO SPK %	SEMO ASH %	DUST COLOR	MIXO SCORE
CANDO	62.5	39.7	42	1	1.57	14.8	110	400	75.4	58.2	33	0.64	95	2
LLOYD	62.7	48.3	67	2	1.54	14.2	111	400	76.4	60.8	37	0.59	105	3
RUGBY	62.5	41.0	47	3	1.60	16.6	122	400	77.2	59.6	70	0.67	95	2
VIC S	62.2	47.8	68	1	1.65	15.9	128	400	76.0	59.3	53	0.65	95	3
WARD	62.3	42.9	53	2	1.58	16.3	120	400	77.9	59.8	23	0.69	95	2

-----VARIETY-----	SEMO PRO %	VIS COL	COOK WT G.	FIRM-NESS RES G.	SCORE ***	-----DEFICIENCIES----- TW KW SM WP TX SX DU SK SP VI FR	-----DEFICIENCIES----- TW KW SM WP TX SX DU SK SP VI .FR
CANDO	14.0	10.0	30.9	5.18	6.5	2	MJ	MJ
LLOYD	12.9	10.5	30.0	6.54	6.4	4		
RUGBY	14.9	10.5	31.0	5.75	6.0	1	MJ	MI
VIC S	14.9	10.5	28.3	7.41	6.3	4	MJ	MI
WARD	15.4	10.5	28.7	6.13	6.0	4	MI	MI

DEFICIENCIES

	TW	KW	SM	WP	TX	SX	DU	SK	SP	VI	.FR
AVG OF STANDARDS	62.2	47.8	15.9	76.0	59.3	95	53	14.9	10.5	7.41	
MINOR FAULTING VALUES	60.0	45.7	6	12.5	73.5	56.3	85	63	11.5	9.5	5.91
MAJOR FAULTING VALUES	59.1	42.7	11	11.5	72.5	55.3	80	68	11.0	9.0	5.16

*EVALUATION 1=NO PROMISE, 2=LITTLE PROMISE, 3=SOME PROMISE, 4=GOOD PROMISE

QUALITY DATA OF DURUM SAMPLES   1988 CROP

TABLE 14

STATE=ARIZONA   STATION=TUCSON   NURSERY=FIELD PLOT

-----VARIETY-----	STD	TEST WT #/BU	1000 K.WT G.	SIZING LG %	SIZING SM %	WHT ASH %	WHT PRO %	HARD-NESS	FALL NO SEC	TOTL EXTR %	SEMO EXTR %	SEMO SPK ASH %	SEMO COLOR SCORE	DUST MIXO SCORE
ALDURA	S	64.0	46.5	79	1	1.37	11.4	101	400	80.4	64.8	0.60	95	1
GEM		64.2	55.2	84	1	1.25	11.5	103	400	78.2	64.9	0.51	70	2
TURBO		63.3	58.1	87	1	1.29	11.3	99	400	78.8	64.0	0.56	90	3
WESTBRED 881	S	62.6	55.6	86	1	1.40	12.8	100	400	77.1	62.3	0.58	95	4
YAVAROS	S	64.1	56.8	89	1	1.27	11.2	103	400	79.8	65.0	0.54	75	2
NK 850		65.0	51.0	85	1	1.41	11.5	95	400	76.7	64.0	0.64	95	4

QUALITY DATA OF DURUM SAMPLES   1988 CROP

STATE=ARIZONA   STATION=TUCSON   NURSERY=FIELD PLOT

-----VARIETY-----	STD	SEMO PRO COL %	VIS COL G.	COOK WT G.	FIRM-NESS RES G.	SCORE ***	MIXO SCORE	TW	KW	SM	WP	TX	SX	DU	SK	SP	VI	FR
ALDURA	S	10.4	9.0	33.6	5.40	7.1	1		MI		MJ					MJ		
GEM		10.5	7.5	31.8	5.44	7.1	1							MJ		MJ	MJ	
TURBO		10.7	8.0	30.9	5.21	6.8	1				MJ					MJ	MI	
WESTBRED 881	S	11.9	9.5	30.8	6.33	5.7	4				MI							
YAVAROS	S	10.2	8.0	32.3	4.49	7.1	1				MJ			MJ	MJ	MJ	MI	
NK 850		10.7	9.0	31.4	5.51	6.7	1								MJ	MJ		

DEFICIENCIES	TW	KW	SM	WP	TX	SX	DU	SK	SP	VI	FR
AVG OF STANDARDS	63.3	51.0	1	12.1	78.7	63.5	95	45	11.1	9.3	5.86
MINOR FAULTING VALUES	61.1	48.9	6	12.5	76.2	60.5	85	55	11.5	8.3	4.36
MAJOR FAULTING VALUES	60.2	45.9	11	11.5	75.2	59.5	80	60	11.0	7.8	3.61

*** EVALUATION 1=NO PROMISE, 2=LITTLE PROMISE, 3=SOME PROMISE, 4=GOOD PROMISE

QUALITY DATA OF DURUM SAMPLES   1988 CROP

TABLE 15

STATE=ARIZONA   STATION=CASA GRANDE   NURSERY=SPECIAL

VARIETY	STD	TEST WT #/BU	1000 K.WT G.	SIZING LG %	SIZING SM %	ASH %	WHT ASH %	WHT PRO %	HARD-NESS NO SEC	FALL	TOTL SEMO EXTR %	SEMO EXTR %	SPK	SEMO ASH %	DUST COLOR	MIXO SCORE
ALDENTE		62.9	50.0	76	1	1	1.42	13.1	107	400	73.6	57.3	13	0.57	95	5
TURBO		62.0	48.1	76	3	1	1.53	12.7	108	400	73.8	56.5	43	0.58	85	4
N DAK STD VIC	S	60.3	44.4	67	1	1	1.65	16.2	145	411	72.3	55.3	40	0.66	85	4

QUALITY DATA OF DURUM SAMPLES   1988 CROP

STATE=ARIZONA   STATION=CASA GRANDE   NURSERY=SPECIAL

VARIETY	STD	SEMO PRO COL %	VIS COL G.	COOK WT G.	FIRM-NESS RES G.	SCORE	SCORE ***	DEFICIENCIES TW KW SM WP TX SX DU SK SP VI FR
ALDENTE		11.9	10.0	31.1	6.00	7.0	4	
TURBO		11.1	10.0	31.3	5.60	7.2	3	
N DAK STD VIC	S	15.3	10.0	29.9	6.50	6.5	4	MI

DEFICIENCIES	TW	KW	SM	WP	TX	SX	DU	SK	SP	VI	FR
AVG OF STANDARDS	60.3	44.4	1	16.2	72.3	55.3	85	40	15.3	10.0	6.50
MINOR FAULTING VALUES	58.1	42.3	6	12.5	69.8	52.3	75	50	11.5	9.0	5.00
MAJOR FAULTING VALUES	57.2	39.3	11	11.5	68.8	51.3	70	55	11.0	8.5	4.25

**EVALUATION 1=NO PROMISE, 2=LITTLE PROMISE, 3=SOME PROMISE, 4=GOOD PROMISE

QUALITY DATA OF DURUM SAMPLES   1988 CROP

TABLE 16

STATE=OREGON   STATION=PENDELTON   NURSERY=SPECIAL

VARIETY STD	TEST WT	1000 K.WT	% LG	% SM	WHT PRO	HARD NESS	SEMO EXTR	DUST COLOR	MIXO SCR	SCORE ***	DEFICIENCIES TW KW SM WP SX DU
CANDO S	63.7	52.1	81	1	12.6	92	63.8	70	4	4	
2	64.6	61.0	90	1	12.7	98	59.1	60	4	1	
3	62.2	53.5	82	1	11.0	98	61.8	55	3	1	MJ MI
4	63.1	54.6	88	0	12.8	97	57.9	65	3	2	MJ
5	62.6	57.3	89	1	12.0	98	65.2	65	3	3	MI
6	64.8	46.7	80	0	11.3	93	60.7	65	3	1	MJ MI MJ
7	63.9	58.5	91	0	12.2	108	64.0	55	3	1	MI MJ MI
8	62.8	52.1	86	1	13.1	106	64.0	70	4	4	MJ
9	64.5	56.2	92	0	12.4	105	60.6	65	6	2	MI MI MJ

DEFICIENCIES	TW	KW	SM	WP	SX	DU
AVG OF STANDARDS	63.7	52.1	1	12.6	63.8	70
MINOR FAULTING VALUES	61.5	50.0	6	12.5	60.8	60
MAJOR FAULTING VALUES	60.6	47.0	11	11.5	59.8	55

***EVALUATION 1=NO PROMISE, 2=LITTLE PROMISE, 3=SOME PROMISE, 4=GOOD PROMISE

TABLE 17

QUALITY DATA OF DURUM SAMPLES   1988 CROP

STATE=CALIFORNIA   STATION=IMPERIAL VALLEY   NURSERY=ADVANCED

-----VARIETY-----	STD	TEST WT #/BU	1000 K.WT G.	SIZING LG %	SM %	WHT ASH %	WHT PRO %	HARD-NESS SEC	FALL NO SEC	TOTL EXTR %	SEMO EXTR %	SEMO SPK %	SEMO ASH %	DUST COLOR	MIXO SCORE
ALDURA	S	64.8	45.0	72	1	1.70	12.2	100	400	75.3	59.5	73	0.65	90	2
ALTAR 84		65.2	39.7	62	3	1.75	12.2	102	400	74.7	59.4	60	0.65	80	3
CARCOMUN 'S'		63.5	47.1	71	1	1.74	11.5	96	400	80.2	57.6	47	0.62	70	2
IMPERIAL		62.6	61.7	90	1	1.92	13.7	103	400	74.0	57.8	53	0.73	80	4
MEXICALI	S	64.6	48.1	70	3	1.71	11.7	102	400	74.0	61.3	47	0.65	80	3
NUTRISEED 28-1		64.5	50.3	76	1	1.69	11.8	97	400	73.5	57.9	63	0.66	80	1
STIFFTAIL 4		64.2	48.1	76	2	1.69	12.6	99	400	74.7	58.9	57	0.64	85	3
WAHA 'S'		64.6	43.5	53	3	1.76	13.0	85	400	74.6	58.5	40	0.62	85	3
WESTBRED 881		63.8	54.3	81	2	1.70	12.9	99	400	73.0	57.0	37	0.63	90	4
WESTBRED TURBO		64.9	53.2	84	1	1.62	11.9	93	400	74.1	59.2	40	0.60	80	3
YAVAROS	S	66.3	54.9	76	2	1.56	12.4	87	400	74.6	59.5	43	0.57	80	2
YECORO ROJO		63.9	38.0	42	5	1.58	13.1	67	400	63.1	48.0	99	0.41	45	4
CD 25126		65.7	44.8	74	1	1.63	11.8	94	400	73.3	58.2	47	0.65	85	4
NK 85D 9614		65.8	54.1	80	1	1.66	12.3	93	400	74.0	59.3	43	0.63	90	4
NK 85D 9687		64.8	46.9	67	1	1.79	13.2	92	400	74.3	59.6	33	0.67	90	4
NK 85D 9699		63.9	48.1	79	1	1.79	12.6	99	400	73.0	57.3	67	0.67	95	7
PH 883-2		63.9	45.0	75	1	1.76	14.3	96	400	72.7	57.7	37	0.65	90	8
PH 884-11		64.4	45.8	71	1	1.62	12.2	96	400	73.2	58.0	50	0.65	85	7
PH 884-32		64.4	42.6	59	1	1.77	12.0	91	400	73.5	58.0	43	0.63	90	6
PH 884-57		63.2	46.7	65	3	1.71	12.0	89	400	74.5	60.1	57	0.63	85	4
UC 712		64.4	47.6	74	1	1.74	12.9	94	400	74.2	58.3	43	0.66	90	4
UC 738		65.5	41.8	59	2	1.78	13.0	94	400	74.3	58.0	70	0.68	80	1
UC 739		66.2	39.5	63	3	1.75	11.9	110	400	74.2	56.2	43	0.62	90	2
UC 740		65.3	43.9	65	2	1.77	13.8	96	400	70.9	56.8	53	0.64	95	2
UC 741		65.4	46.3	70	1	1.80	13.2	108	400	73.0	57.5	73	0.69	90	1
UC 742		64.8	47.7	76	1	1.73	13.0	108	400	75.6	60.6	63	0.68	90	2
UC 743		65.7	43.9	71	1	1.71	12.9	97	400	75.1	60.0	63	0.73	90	3
UC 780		64.4	45.7	62	3	1.64	12.9	106	400	77.8	59.3	83	0.64	85	3
UC 781		64.5	43.5	60	2	1.65	12.1	94	400	59.4	59.3	67	0.61	80	2
UC 782		66.4	45.5	68	1	1.67	12.8	97	400	72.5	56.8	60	0.67	80	3
FMC D5081		62.0	44.2	57	2	1.76	12.0	94	400	74.7	59.6	77	0.70	95	3
FMC D5110		65.1	41.7	66	1	1.70	12.7	91	400	73.6	58.6	83	0.63	90	2
FMC D5172		65.2	50.3	75	1	1.80	12.7	93	400	74.3	59.7	47	0.75	80	4
FMC D5238		65.0	49.0	78	1	1.65	11.9	102	400	74.4	58.1	60	0.64	90	2
FMC D5269		65.4	44.4	67	2	1.65	12.7	91	400	74.7	60.7	37	0.64	85	3
FMC D5317		64.0	43.5	60	3	1.90	12.2	87	400	73.3	58.1	87	0.74	90	4
FMC D5384		64.5	52.1	82	1	1.75	12.4	88	400	74.3	60.0	53	0.70	85	3
FMC D5573		64.4	43.1	62	1	1.77	11.3	89	400	74.4	58.4	58	0.66	85	3
FMC D5633		66.3	54.3	81	1	1.66	12.4	98	400	75.2	60.5	77	0.63	85	3
FMC D5691		62.6	39.0	58	1	1.86	12.6	100	400	82.0	61.2	93	0.77	80	4
FMC D5730		64.4	56.5	65	1	1.64	12.0	95	400	75.0	58.4	50	0.65	80	4

TABLE 17 (Cont.)

VARIETY	STD	SEMO PRO %	VIS COL G.	COOK WT G.	FIRM-NESS G.	FIRM-NESS RES G.	SCORE ***	TW	KW	SM	WP	TX	SX	DU	SK	SP	VI	FR
ALDURA	S	11.2	9.5	32.7	4.51	7.3	1	MJ	MI							MJ	MI	
ALTAR 84		11.2	9.5	31.9	4.86	6.9	1		MI							MI	MI	
CARCOMUN 'S'		10.7	7.5	31.6	5.38	6.8	1		MI		MI					MJ	MI	
IMPERIAL		13.1	9.0	30.6	5.72	7.1	4		MI		MI							
MEXICALI	S	10.7	8.5	32.0	5.49	6.5	1		MI		MI					MJ	MI	
NUTRISEED 28-1		10.9	8.5	32.7	4.73	6.1	1									MI	MJ	
STIFFTAIL 4	S	11.6	8.0	32.0	5.62	7.0	4				MI							
WAHA 'S'		12.0	9.0	33.1	5.16	6.7	3	MJ						MI				
WESTBRED 881		12.0	9.5	31.5	5.66	6.6	3									MJ		
WESTBRED TURBO		10.8	8.5	31.5	5.01	7.0	1		MI		MI					MI	MI	
YAVAROS	S	10.5	8.0	32.2	4.77	7.0	1		MI		MI					MJ	MJ	MJ
YECORO ROJO		11.6	5.0	33.1	4.41	7.4	1		MI		MI					MJ		
CD 25126		11.0	9.0	33.0	5.46	6.5	1		MI		MI							
NK 85D 9614		11.5	9.0	31.5	5.92	7.6	1		MI		MI					MJ	MI	
NK 85D 9687		10.5	9.0	31.0	5.25	7.4	2	MI				MJ	MI			MJ	MI	
NK 85D 9699		11.8	9.5	32.5	6.59	8.0	4	MI						MI		MJ	MI	
PH 883-2		13.2	9.5	31.9	7.97	7.1	4				MI							
PH 884-11		11.5	9.5	30.6	7.11	6.6	2	MI			MI					MJ	MI	
PH 884-32		11.1	9.5	30.9	4.54	7.1	1	MI			MI					MI	MI	
PH 884-57		11.3	9.0	32.7	5.53	7.3	2	MI			MI					MI	MI	
UC 712		12.0	9.5	30.0	5.36	7.1	4	MJ			MI					MJ	MI	
UC 738		12.5	9.0	31.2	4.41	6.8	2	MJ			MI			MJ				
UC 739		11.2	9.5	32.8	5.18	7.4	1	MJ			MI					MJ	MI	
UC 740		12.8	10.0	31.8	6.29	7.4	1	MJ	MJ		MJ	MJ						
UC 741		12.3	9.5	31.0	5.25	6.6	1	MI			MI					MJ		
UC 742		11.9	9.5	31.4	6.03	6.9	4											
UC 743		11.6	9.5	32.1	5.68	7.1	3											
UC 780		11.3	9.5	31.6	5.49	6.8	1	MJ			MI					MI	MI	
UC 781		11.4	9.0	32.0	5.64	6.8	1	MJ			MI	MI				MJ	MI	
UC 782		11.9	9.0	32.1	5.51	7.4	3					MI						
FMC D5081		11.3	10.0	31.1	5.42	7.0	1	MJ	MJ		MI					MJ	MI	
FMC D5118		11.7	9.5	31.2	5.31	7.0	2	MJ	MJ		MI					MJ	MJ	
FMC D5172		12.2	9.5	31.6	5.46	7.0	4											
FMC D5238		10.7	9.5	31.6	4.86	7.9	1				MI					MJ	MI	
FMC D5269		11.1	9.0	31.7	3.93	7.3	3											
FMC D5317		11.4	9.5	31.9	5.01	7.7	2	MJ								MJ	MI	
FMC D5384		11.4	9.5	31.8	5.46	7.3	2	MJ								MI	MI	
FMC D5573		10.3	9.0	32.6	4.99	7.7	1	MJ			MI					MJ	MI	
FMC D5633		11.9	9.0	31.1	5.34	6.7	2	MJ			MJ					MJ	MI	
FMC D5691		11.6	9.0	30.7	5.66	7.1	2									MJ		
FMC D5730		12.0	9.5	31.7	5.66	7.0	4									MJ		

DEFICIENCIES	TW	KW	SM	WP	TX	SX	DU	SK	SP	VI	FR
AVG OF STANDARDS	65.2	49.3	2	12.1	74.9	60.1	83	54	10.0	0.7	4.92
MINOR FAULTING VALUES	63.0	47.2	7	12.5	72.4	57.1	73	64	11.5	7.7	3.42
MAJOR FAULTING VALUES	62.1	44.2	12	11.5	71.4	56.1	68	69	11.0	7.2	2.67

*EVALUATION 1=NO PROMISE, 2=LITTLE PROMISE, 3=SOME PROMISE, 4=GOOD PROMISE

TABLE 18

QUALITY DATA OF DURUM SAMPLES
STATE=CALIFORNIA STATION=KINGS CO.   1988 CROP
NURSERY=ADVANCED

VARIETY	STD	TEST WT #/BU	1000 K.WT G.	SIZING LG %	SM %	WHT ASH %	WHT PRO %	HARD-NESS SEC	FALL NO SEC	TOTL EXTR %	SEMO EXTR %	SEMO EXTR SPK %	SEMO ASH %	DUST COLOR	MIXO SCORE
ALDURA	S	63.9	49.3	74	1	1.44	12.2	130	400	78.6	63.6	43	0.60	95	1
ALTAR 84	S	66.1	46.9	73	2	1.38	11.0	124	400	78.4	63.2	47	0.60	90	3
CARCOMUN 'S'		63.4	49.0	67	4	1.52	12.0	116	400	77.9	62.1	20	0.62	70	3
IMPERIAL		61.1	63.3	87	1	1.68	14.5	114	400	77.1	61.5	67	0.74	90	6
MEXICALI	S	62.3	53.8	75	1	1.46	12.6	116	400	78.1	64.3	67	0.67	90	5
NUDURA		65.2	55.6	92	0	1.38	13.0	122	400	77.9	62.4	40	0.67	100	4
NUTRISEED 28-1		62.6	52.6	70	2	1.56	13.4	116	400	76.6	60.7	23	0.67	80	2
STIFFTAIL 4		63.4	52.4	78	2	1.49	13.7	124	400	78.3	62.6	30	0.66	80	3
WAHA 'S'		63.8	49.8	61	2	1.51	12.8	122	400	78.3	62.4	27	0.62	95	2
WESTBRED 881		63.2	51.0	79	1	1.49	13.0	113	400	76.9	60.8	63	0.61	100	5
WESTBRED TURBO	S	63.8	53.2	78	2	1.39	12.9	123	400	76.5	60.0	67	0.57	90	3
YAVAROS		64.6	55.6	80	1	1.39	12.9	127	400	78.2	63.2	33	0.59	80	3
CD 25126		65.3	28.5	80	1	1.44	12.1	117	400	77.9	61.1	30	0.61	95	3
FMC D5081		62.1	46.7	65	2	1.51	12.9	115	400	78.4	62.1	30	0.62	100	4
FMC D5118		64.1	46.7	77	1	1.45	13.0	124	400	76.0	59.8	63	0.59	100	3
FMC D5172		63.8	51.5	80	1	1.56	13.5	116	400	78.1	64.4	47	0.70	90	4
FMC D5269		63.5	47.4	70	2	1.50	12.6	111	400	77.9	63.4	27	0.64	95	4
FMC D5317		63.2	47.8	79	0	1.61	13.1	105	400	77.6	62.4	53	0.70	100	5
NK 85D 9687		64.6	54.9	83	1	1.40	11.4	114	400	78.0	63.7	33	0.61	100	4
NK 85D 9699		63.0	54.1	88	1	1.45	13.1	116	400	78.1	61.3	33	0.61	100	5
PH 883-2		64.5	52.1	83	1	1.44	13.4	125	400	78.1	62.6	47	0.59	100	7
PH 883-11		62.4	42.9	55	0	1.56	13.2	117	400	77.3	62.3	50	0.70	95	4
PH 884-32		63.5	46.1	62	1	1.60	12.1	118	400	78.3	62.6	37	0.64	95	4
PH 884-57		63.0	53.5	79	1	1.39	11.7	114	400	79.1	62.7	43	0.60	90	3
UC 712		63.5	51.5	82	1	1.43	12.7	118	400	78.6	62.8	53	0.66	95	5
UC 738		64.4	45.0	65	1	1.53	14.1	123	400	79.1	62.7	73	0.67	85	1
UC 739		65.0	42.6	61	1	1.75	12.4	117	400	78.1	61.1	37	0.64	100	3
UC 740		64.9	46.7	77	1	1.48	13.3	123	400	75.9	60.3	47	0.59	105	2
UC 741		64.8	50.0	80	0	1.58	13.3	118	400	76.2	61.7	63	0.70	95	1
UC 742		62.7	49.5	71	1	1.58	13.6	125	400	77.2	62.2	37	0.69	90	3
UC 743		65.0	47.6	80	1	1.51	13.2	121	400	77.3	62.1	20	0.69	90	5
UC 780		65.3	46.3	62	2	1.54	12.2	111	400	77.8	62.2	60	0.61	100	3
UC 781		63.1	45.8	61	2	1.42	12.4	119	400	77.2	61.5	33	0.57	90	3
UC 782		65.6	50.0	81	1	1.48	13.0	122	400	76.8	61.0	37	0.62	85	4

TABLE 18 (Cont.)

VARIETY	STD	SEMO PRO %	VIS COL G.	COOK WT G.	FIRM-NESS G.	RES G.	-SCORE ***	TW	KW	SM	WP	TX	SX	DU	SK	SP	VI	FR
ALDURA	S	11.1	9.5	32.0	4.64	7.3	2	MI	MI							MI	MI	
ALTAR 84		10.7	8.5	31.1	5.14	7.0	1	MJ	MJ				MJ			MI	MI	
CARCOMUN 'S'		10.6	9.0	31.0	5.42	7.2	1	MI	MJ	MJ			MJ			MI	MI	MI
IMPERIAL		14.2	9.5	30.3	6.39	7.2	3					MJ		MI		MI	MI	
MEXICALI		11.3	9.0	31.5	5.44	6.4	3								MI			
NUDURA	S	11.4	9.0	30.1	6.07	6.5	3							MJ		MJ	MI	
NUTRISEED 28-1		11.8	9.5	32.3	5.57	6.5	3						MI	MI				
STIFFTAIL 4		12.5	9.0	30.6	6.20	6.7	4											
WAHA 'S'		11.5	8.5	30.6	6.20	6.5	4									MI		
WESTBRED 881		11.7	9.5	32.5	5.46	6.5	3		MJ	MI						MJ	MI	
WESTBRED TURBO		11.4	9.5	31.0	5.29	6.7	3					MI		MJ				
YAVAROS	S	10.9	9.5	31.4	6.16	6.7	3											
CD 25126		11.3	9.0	31.1	5.40	6.9	1							MI				
FMC D5081		11.9	9.0	29.4	6.03	7.6	2		MJ				MJ					
FMC D5118		12.5	9.0	30.1	5.55	7.0	1		MJ			MI		MJ				
FMC D5172		12.4	9.0	30.5	5.62	7.1	1									MI		
FMC D5269		11.5	9.0	30.5	5.40	6.9	2											
FMC D5317		12.2	9.0	30.5	5.42	7.1	4		MJ					MI		MI		
NK 85D 9687		10.5	9.5	30.7	5.81	7.1	1											
NK 85D 9699		11.7	9.5	31.3	5.53	7.2	4			MJ								
PH 883-2		12.5	9.5	29.2	5.90	7.1	4					MI		MI				
PH 884-11		12.2	9.5	31.6	6.35	6.9	3			MI				MI				
PH 884-32		10.8	9.5	31.1	6.29	6.9	1		MJ	MI								
PH 884-57		10.6	9.0	30.6	5.64	7.3	1			MI								
UC 712		11.1	9.5	32.1	4.92	7.3	3							MI	MJ			
UC 738		13.1	9.0	31.6	5.92	6.4	2						MJ	MI	MI			
UC 739		11.6	10.0	30.4	5.98	6.8	2			MI			MJ	MI				
UC 740		11.9	10.0	31.7	6.13	6.7	2				MI				MJ			
UC 741		12.3	9.5	32.2	6.39	6.7	3					MI			MJ			
UC 742		12.6	9.5	29.8	6.03	6.6	4											
UC 743		12.1	9.5	31.0	6.39	6.6	3											
UC 780		11.4	9.5	31.8	6.83	6.4	1			MI			MJ		MI			
UC 781		10.9	9.0	30.8	5.88	6.6	1			MI			MJ		MJ	MJ		
UC 782		11.5	9.0	31.2	6.33	6.2	3						MI	MI	MI	MI	MI	

DEFICIENCIES	TW	KW	SM	WP	TX	SX	DU	SK	SP	VI	FR
AVG OF STANDARDS	63.6	52.9	1	12.3	70.3	63.7	88	39	11.1	8.8	5.16
MINOR FAULTING VALUES	61.4	50.8	6	12.5	75.8	60.7	78	49	11.5	7.8	3.66
MAJOR FAULTING VALUES	60.5	47.8	11	11.5	74.0	59.7	73	54	11.0	7.3	2.91

*EVALUATION 1=NO PROMISE, 2=LITTLE PROMISE, 3=SOME PROMISE, 4=GOOD PROMISE.

TABLE 19

VARIETY	STD	TEST WT #/BU	1000 K.WT G.	SIZING LG %	SIZING SM %	WHT ASH %	WHT PRO %	HARD-NESS	FALL NO SEC	TOTL EXTR %	SEMO EXTR %	SEMO EXTR SPK	SEMO ASH %	DUST COLOR	MIXO SCORE
ALDURA	S	63.1	51.0	85	1	1.44	13.4	137	400	78.6	62.5	83	0.64	95	2
ALTAR 84	S	64.7	47.0	79	2	1.43	12.4	127	400	88.8	63.8	43	0.64	85	5
CARCOMUN 'S'		64.4	48.5	81	2	1.44	12.4	128	400	79.2	61.7	63	0.60	65	3
IMPERIAL		62.2	68.5	96	2	1.69	16.5	133	400	76.8	60.4	40	0.77	80	8
MEXICALI		62.9	56.8	85	1	1.44	13.2	124	400	77.9	63.4	83	0.68	85	7
NUDURA	S	63.8	56.2	87	1	1.52	13.7	121	400	78.0	62.6	50	0.68	100	7
NUTRISEED 28-1		63.5	59.5	87	1	1.45	13.3	123	400	77.0	60.6	40	0.65	75	2
STIFFTAIL 4		63.9	63.3	92	1	1.39	13.9	120	312	77.3	61.4	57	0.63	75	5
WAHA 'S'		64.2	52.6	79	1	1.41	13.8	127	400	77.5	62.0	83	0.65	90	4
WESTBRED 881		63.3	61.0	94	1	1.54	14.4	131	400	76.2	61.0	83	0.68	95	8
WESTBRED TURBO		64.3	57.3	85	2	1.34	13.7	131	400	78.0	61.5	30	0.60	85	6
YAVAROS	S	65.6	58.8	89	1	1.36	12.3	120	400	77.1	61.6	83	0.59	75	3
CD 25126		63.2	49.5	80	2	1.43	13.0	125	400	76.9	59.8	70	0.67	90	5
FMC D5081		62.1	46.9	58	2	1.49	13.3	119	400	78.7	62.1	37	0.69	105	8
FMC D5118		63.6	48.5	77	1	1.48	14.9	133	400	76.7	59.1	73	0.64	95	3
FMC D5172		63.8	56.8	83	1	1.52	14.5	129	400	77.7	60.6	47	0.72	100	8
FMC D5269		64.0	51.8	80	1	1.57	13.9	120	400	78.7	62.5	63	0.75	85	6
FMC D5317		62.8	51.8	82	0	1.41	13.2	131	400	77.1	63.2	47	0.68	90	6
NK 85 D9687		64.3	58.8	81	1	1.61	14.1	116	400	77.2	61.3	43	0.76	90	8
NK 85 D9699		62.5	59.2	92	0	1.44	12.2	127	328	78.6	63.5	53	0.70	105	6
PH 883-2		63.8	52.1	80	0	1.52	14.5	126	400	77.1	60.5	47	0.70	105	8
PH 884-11		63.7	54.3	84	1	1.51	13.5	126	400	77.1	61.1	23	0.68	95	7
PH 883-32		63.7	50.8	66	1	1.52	12.7	118	400	77.5	61.5	30	0.69	95	7
PH 884-57		62.8	59.5	83	2	1.42	12.3	120	400	78.0	60.7	17	0.70	95	6
UC 712		63.1	56.5	85	1	1.46	13.3	121	400	78.4	62.6	63	0.66	90	6
UC 738		64.4	49.3	69	1	1.49	14.8	124	400	77.4	61.0	40	0.70	95	7
UC 739		64.7	50.0	81	1	1.55	14.0	122	400	75.9	60.4	33	0.67	80	2
UC 740		64.1	48.5	75	1	1.50	14.1	125	400	75.7	58.8	50	0.65	90	4
UC 741		64.4	51.8	78	1	1.55	14.5	122	400	74.1	59.5	43	0.64	100	4
UC 742		63.8	51.8	85	0	1.43	13.9	122	400	76.3	60.7	37	0.68	85	3
UC 743		65.4	54.3	87	1	1.49	13.9	128	400	77.3	60.7	53	0.68	85	5
UC 780		64.4	51.8	84	1	1.33	12.8	121	400	77.2	60.2	53	0.61	90	6
UC 781		63.0	49.8	69	1	1.41	12.2	116	400	77.3	60.0	50	0.63	85	4
UC 782		65.4	50.3	82	0	1.51	13.6	119	400	77.1	59.0	30	0.67	80	7

VARIETY	STD	SEMO PRO COL %	VIS COL G.	COOK WT G.	FIRM-NESS G.	RES	SCORE ***	TW	KW	SM	WP	TX	SX	DU	SK	SP	VI	FR
ALDURA	S	12.5	9.0	32.6	4.58	7.0	4	MI										
ALTAR 84		11.4	9.0	31.7	4.97	7.0	1	MI							MI	MI		
CARCOMUN 'S'		11.4	7.5	30.9	4.95	7.5	1	MJ				MJ				MI	MI	
IMPERIAL		15.4	8.5	29.6	7.04	5.8	4											
MEXICALI	S	11.9	9.0	31.9	5.64	6.8	4								MI			
NUDURA		12.7	9.5	31.2	5.88	6.6	4											
NUTRISEED 28-1		12.3	8.0	32.7	4.97	6.7	2								MI			
STIFFTAIL 4		12.8	8.0	30.9	6.09	6.9	2											
WAHA 'S'		13.0	9.0	32.3	4.99	7.1	4	MI										
WESTBRED 881		13.6	9.5	30.0	6.72	6.4	4				MI							
WESTBRED TURBO		12.6	7.5	31.4	5.55	6.7	2											
YAVAROS	S	10.9	8.0	31.7	5.01	7.4	1	MI					MI			MJ		
CD 25126		11.7	8.5	31.1	5.03	6.9	3											
FMC D5081		12.9	10.0	30.8	5.70	6.2	3	MJ										
FMC D5118		13.9	9.5	31.4	5.40	6.5	2	MJ					MI					
FMC D5172		13.4	9.5	30.8	6.00	6.9	4					MI						
FMC D5269		12.4	9.0	30.5	5.64	6.3	4	MI										
FMC D5317		13.5	9.0	29.8	6.35	6.3	4	MI										
NK 85 D9687		10.7	9.5	31.6	5.31	7.2	1	MI					MI			MJ		
NK 85 D9699		14.0	9.5	30.4	6.42	6.7	4											
PH 883-2		14.1	9.5	30.4	6.50	6.4	4	MI										
PH 884-11		12.8	9.0	30.5	6.13	7.0	4											
PH 883-32		11.6	9.0	31.6	5.44	6.7	4											
PH 884-57		11.7	9.0	31.4	0.54	6.8	1	MI			MI							MJ
UC 712		12.3	9.5	30.4	5.57	7.6	4											
UC 738		14.0	9.0	32.5	5.34	6.5	3											
UC 739		13.0	9.0	31.2	5.27	6.8	3	MJ							MI			
UC 740		13.2	9.5	30.5	5.83	6.6	2	MJ							MI			
UC 741		13.5	9.5	31.4	5.01	6.8	1	MI				MJ MJ						
UC 742		13.0	9.0	31.4	5.79	6.8	1	MI										
UC 743		12.9	9.0	30.3	6.24	6.5	4											
UC 780		12.0	9.0	30.6	5.68	6.2	4	MJ		MI								
UC 701		11.1	9.5	32.1	4.54	7.0	1	MJ					MI				MI	
UC 782		12.6	8.5	30.8	5.94	7.0	2	MJ					MI					

DEFICIENCIES	TW	KW	SM	WP	TX	SX	DU	SK	SP	VI	FR
AVG OF STANDARDS	63.9	55.5	1	13.0	77.9	62.5	85	83	11.8	0.7	5.00
MINOR FAULTING VALUES	61.7	53.4	6	12.5	75.4	59.5	75	93	11.5	7.7	3.50
MAJOR FAULTING VALUES	60.0	50.4	11	11.5	74.4	58.5	70	90	11.0	7.2	2.83

* EVALUATION 1=NO PROMISE, 2=LITTLE PROMISE, 3=SOME PROMISE, 4=GOOD PROMISE

TABLE 20

QUALITY DATA OF DURUM SAMPLES   1988 CROP
STATE=CALIFORNIA   STATION=IMPERIAL VALLEY   NURSERY=ADVANCED

-----VARIETY-----	STD	TEST WT #/BU	1000 K.WT G.	SIZING LG %	SIZING SM %	WHT ASH %	WHT PRO %	HARD-NESS	FALL NO SEC	TOTL EXTR %	SEMO EXTR %	SEMO SPK	SEMO ASH %	DUST COLOR	MIXO SCORE
ALTAR		65.2	45.5	69	3	1.76	11.5	109	400	79.9	64.9	37	0.72	90	3
MEXICALI 75	S	62.8	43.9	63		1.78	12.7	97	400	79.7	66.0	57	0.77	90	4
WESTBRED 911		64.2	51.5	82	1	1.67	12.1	99	400	78.7	64.1	63	0.70	90	3
1		64.3	51.0	80	1	1.73	12.7	109	400	80.0	64.7	53	0.70	100	1
2		64.7	44.4	75	1	1.70	13.2	112	400	79.3	64.2	77	0.72	95	3
3		64.8	45.7	61	1	1.76	12.9	105	400	78.6	62.7	67	0.73	100	2
4		65.3	50.5	82	1	1.75	13.4	110	400	79.6	63.5	60	0.78	90	4
5		65.2	43.9	69	1	1.83	13.7	110	400	82.7	68.2	37	0.78	105	2
6		65.6	43.9	69	1	1.80	13.4	110	400	77.0	59.8	40	0.73	90	3
7		64.0	54.3	84	1	1.85	13.1	98	400	78.2	63.2	67	0.78	90	2
8		63.6	43.3	63	2	1.70	13.0	102	400	78.5	63.5	30	0.75	95	3
9		65.2	37.7	38	3	1.75	13.5	106	400	77.5	61.8	37	0.72	90	4
10		64.0	45.5	63	3	1.80	13.5	106	400	78.9	62.9	40	0.75	90	3
11		65.2	44.6	71	1	1.81	13.5	104	400	79.7	64.5	73	0.73	105	3
12		64.0	49.3	79	1	1.82	13.1	97	400	77.1	63.2	50	0.78	105	4
13		64.0	40.5	54	3	1.85	13.7	105	400	79.7	60.8	43	0.74	105	3
14		64.3	45.2	68	1	1.83	13.2	107	400	79.0	62.9	60	0.77	105	1
15		64.4	43.3	62	3	1.73	12.6	102	400	79.1	62.8	33	0.73	95	3
16		65.2	43.3	70	1	1.80	13.1	113	400	79.2	62.2	47	0.73	85	4
17		63.7	24.3	85	1	1.82	12.6	97	400	79.0	63.5	30	0.71	90	3
18		62.7	44.8	73	2	1.84	13.1	101	400	79.3	63.7	53	0.75	70	3
19		64.8	42.0	64	2	1.73	12.6	107	400	78.9	62.4	60	0.70	80	3
20		64.9	39.2	53	1	1.69	12.5	111	400	79.6	64.5	30	0.70	90	3
21		64.6	46.9	75	1	1.94	12.7	112	400	79.6	62.9	43	0.82	90	3
22		63.7	42.9	57	3	1.93	13.1	106	400	77.6	64.5	30	0.81	85	3
23		64.6	36.4	39	3	1.70	13.2	111	400	79.3	62.9	20	0.70	85	3
25		65.2	51.0	79	1	1.63	12.0	97	400	79.7	61.2	23	0.72	75	1
26		64.1	48.5	79	1	1.76	11.7	100	400	79.3	63.6	17	0.65	80	2
29		65.5	43.7	70	1	1.84	12.9	108	400	79.0	62.8	37	0.70	95	3
30		64.9	35.1	50	3	1.60	11.0	67	400	67.1	51.1	99	0.42	50	2
31		65.0	46.7	77	2	1.77	12.4	102	400	76.3	59.8	40	0.64	100	3
32		66.1	48.8	76	1	1.88	13.4	112	400	78.6	63.3	27	0.75	80	3
33		65.3	45.0	73	2	1.91	14.1	113	400	78.4	61.5	37	0.74	100	1
34		65.9	41.8	58	3	1.91	13.7	106	400	77.4	60.2	37	0.73	90	1
35		65.4	45.8	78	1	1.72	12.9	111	400	77.7	63.0	23	0.69	95	4
36		65.3	49.8	75	1	1.82	13.8	110	400	77.7	62.5	43	0.72	90	5
37		63.7	49.8	78	1	1.69	13.6	117	400	77.6	3.0	63	0.72	90	5
38		65.1	44.4	68	2	1.81	12.9	112	400	77.8	62.7	23	0.70	95	5
39		63.4	46.7	75	1	1.70	13.2	108	400	79.7	66.7	47	0.75	85	5
40		65.1	47.8	82	1	1.79	13.4	111	400	78.2	62.1	40	0.66	95	2
41		65.4	49.0	77	1	1.71	12.5	101	400	78.7	63.6	30	0.67	95	3
42		65.2	42.9	61	1	1.77	13.5	104	400	79.5	64.1	40	0.71	80	1
43		65.6	41.0	61	2	1.82	13.1	116	400	77.6	61.8	43	0.70	100	3
44		64.7	42.7	60	2	1.81	14.1	116	400	78.2	62.4	37	0.74	105	2
45		65.1	40.5	76	1	1.01	13.4	111	400	78.2	62.4	37	0.74	95	1
46		64.4	51.5	06	1	1.69	13.1	111	400	79.4	64.2	30	0.70	90	2
47		64.6	47.4	79	1	1.70	13.7	116	400	79.5	64.7	27	0.75	100	3

VARIETY	STD	SEMO PRO %	VIS COL G.	COOK WT	FIRM-NESS RES G.	SCORE ***	TW	KW	SM	WP	TX	SX	DU	SK	SP	VI	FR
ALTAR		10.8	9.0	32.5	5.75	7.6	1							MJ				
MEXICALI 75	S	11.7	9.0	31.9	6.33	7.1	4		MI						MI			
WESTBRED 911		11.2	9.0	31.7	6.61	7.4	2								MI			
1		11.5	9.5	32.6	5.90	7.2	3											
2		11.9	9.5	62.7	6.11	7.2	3							MI	MI			
3		11.6	9.5	31.8	5.14	6.8	3							MI	MI			
4		12.4	9.5	30.7	5.62	6.7	4											
5		12.7	10.0	31.7	4.88	6.4	4											
6		12.1	9.0	32.9	5.08	6.7	1					MI	MI	MJ	MJ			
7		12.3	9.5	31.7	5.68	6.8	4						MI	MI				
8		11.9	9.5	31.1	5.55	6.9	4				MJ	MJ	MJ	MI	MI			
9		11.5	9.5	32.2	5.66	6.5	1			MJ	MI	MJ						
10		12.5	9.0	32.8	5.01	6.9	3											
11		11.7	10.0	31.2	6.07	7.0	3											
12		12.9	10.0	31.8	6.05	6.5	1		MI			MI	MJ					MI
13		11.8	10.0	32.2	4.62	6.6	3					MJ						
14		11.8	10.0	30.9	5.27	6.9	3											
15		11.2	9.5	32.3	5.18	6.6	2					MI	MI	MI				
16		11.7	9.0	31.5	5.64	6.6	3					MI	MJ	MI				
17		12.1	9.5	30.7	5.40	6.7	3		MI			MJ	MJ	MI	MJ			MI
18		11.1	8.0	33.2	5.27	7.4	1	MJ				MI	MI	MI	MI			
19		10.6	8.5	31.6	4.99	6.8	1		MI	MI				MJ	MJ			
20		11.6	9.0	32.1	5.12	6.5	4					MJ	MJ	MJ	MJ			
21		12.0	9.5	31.4	5.70	7.3	3					MI	MI	MI				
22		11.9	9.5	29.6	5.72	7.4	2	MI				MJ	MJ					
23		10.4	10.0	31.6	4.54	7.2	1	MJ				MJ	MI					MI
25		10.4	10.5	31.1	4.86	7.3	1	MJ	MI			MJ	MJ	MJ	MJ			
26		11.7	10.0	31.6	5.21	6.9	4		MI			MI	MI	MI				
29		12.1	10.0	30.7	5.44	7.2	3					MJ	MJ	MI				
30		9.6	8.5	31.7	5.10	6.3	1	MJ	MJ	MJ	MJ	MI	MJ	MJ	MJ			
31		10.9	11.0	31.0	4.88	7.3	1		MI	MI	MJ	MI	MJ					
32		12.2	9.5	30.7	5.34	6.5	2			MI								
33		13.1	10.5	31.7	5.38	6.6	2					MJ	MI					
34		12.7	10.0	31.5	4.99	6.9	2	MI				MJ	MJ					
35		11.8	10.0	29.7	6.09	7.2	3					MJ	MJ					
36		12.4	10.0	30.0	6.22	6.7	3					MJ	MI					
37		12.5	10.0	29.5	6.33	6.5	2	MI				MJ	MI					
38		11.4	10.0	30.6	6.37	7.3	2					MJ	MI					
39		11.9	9.5	30.7	5.59	7.4	4					MI	MJ	MI	MI			
40		12.4	10.0	31.0	5.42	7.1	3					MI	MJ	MI				MJ
41		11.0	10.0	30.4	5.23	7.6	1					MI						
42		12.3	10.0	30.8	5.14	6.6	2						MI					
43		12.4	10.5	31.2	5.40	7.2	2					MJ	MJ					
44		12.9	10.5	30.5	5.68	7.0	2	MI				MJ	MJ					
45		11.9	11.0	31.4	5.14	6.9	3					MI	MI					
46		12.2	10.0	31.0	5.98	6.6	3											
47		13.0	10.0	30.8	5.64	6.7	4											

DEFICIENCIES

	TW	KW	SM	WP	TX	SX	DU	SK	SP	VI	FR
AVG OF STANDARDS	62.8	43.9	3	12.7	79.7	66.0	90	57	11.7	9.0	6.33
MINOR FAULTING VALUES	60.6	41.8	8	12.5	77.2	63.0	80	67	11.5	8.0	4.83
MAJOR FAULTING VALUES	59.7	38.8	13	11.5	76.2	62.0	75	72	11.0	7.5	4.08

*EVALUATION 1=NO PROMISE, 2=LITTLE PROMISE, 3=SOME PROMISE, 4=GOOD PROMISE

TABLE 21

QUALITY DATA OF DURUM SAMPLES   1988 CROP
STATE=CALIFORNIA   STATION=DAVIS   NURSERY=ADVANCED

-----VARIETY-----	STD	TEST WT #/BU	1000 K.WT G.	SIZING LG %	SIZING SM %	WHT ASH %	WHT PRO %	HARD-NESS SEC	FALL NO SEC	TOTL EXTR %	SEMO EXTR %	SEMO EXTR SPK %	SEMO ASH %	DUST COLOR	MIXO SCORE
ALDURA	S	63.9	51.8	78	1	1.46	12.5	125	400	79.0	62.7	67	0.69	95	2
ALTAR 84	S	65.1	46.1	64	2	1.55	11.9	121	400	79.3	64.0	50	0.70	85	4
CARCOMUN 'S'		63.7	51.8	71	2	1.46	11.4	104	400	77.1	63.2	43	0.65	65	3
IMPERIAL		62.5	69.9	96	0	1.69	14.1	119	400	77.2	61.2	57	0.81	85	8
MEXICALI	S	62.6	57.3	80	1	1.52	12.2	116	400	78.1	63.3	37	0.73	85	5
NUDURA		64.1	61.0	95	0	1.64	13.0	119	400	77.4	60.3	57	0.77	95	6
NUTRISEED 28-1		62.3	53.2	71	1	1.52	11.4	102	400	77.0	59.8	10	0.70	80	2
STIFFTAIL 4		64.7	61.7	90	0	1.47	13.3	122	400	78.1	62.2	27	0.68	80	5
WAHA 'S'		64.4	52.6	73	1	1.50	11.3	110	400	78.1	61.3	43	0.73	90	2
WESTBRED 881		63.4	56.8	86	0	1.59	12.9	113	400	77.3	61.8	80	0.72	95	5
WESTBRED TURBO		64.6	58.1	82	1	1.45	12.2	122	400	77.8	62.0	50	0.67	85	4
YAVAROS	S	65.2	62.9	84	1	1.36	11.9	108	400	79.2	62.7	53	0.63	75	3
CD 25126		65.8	52.1	88	0	1.51	12.4	121	400	78.8	61.8	83	0.70	90	5
FMC D5081		63.3	52.9	69	1	1.56	12.2	114	400	77.8	63.2	73	0.75	100	7
FMC D5118		63.7	50.5	67	1	1.53	12.4	112	400	77.9	61.1	57	0.67	95	3
FMC D5172		63.7	58.5	83	1	1.68	13.6	118	400	78.0	62.0	63	0.77	90	4
FMC D5269		64.0	54.6	79	1	1.57	12.2	113	400	78.0	59.7	23	0.68	90	4
FMC D5317		64.0	52.4	84	1	1.75	12.9	113	400	76.8	61.0	57	0.76	90	7
NK 85D 9687		64.4	61.3	84	1	1.46	11.7	112	400	77.2	62.7	40	0.68	95	6
NK 85D 9699		62.9	56.5	89	1	1.56	12.8	113	400	78.4	61.3	24	0.72	100	6
PH 883-2		63.6	52.9	81	1	1.56	13.6	110	400	76.9	60.2	63	0.69	95	7
PH 883-11		62.3	50.0	75	2	1.61	13.0	121	400	77.8	62.2	33	0.74	95	6
PH 884-32		63.2	48.8	61	2	1.67	12.0	111	400	76.1	61.6	43	0.75	95	5
PH 884-57		63.6	58.1	85	1	1.49	11.6	115	400	77.3	61.6	40	0.66	90	4
UC 712		63.7	57.3	88	1	1.53	12.4	114	400	78.0	61.5	23	0.70	95	5
UC 738		63.8	47.6	65	2	1.64	13.4	117	400	77.4	61.5	50	0.71	80	1
UC 739		64.0	47.6	76	0	1.67	13.0	120	400	75.9	60.0	40	0.68	90	4
UC 740		63.8	48.3	71	1	1.63	13.5	120	400	75.4	59.2	27	0.70	100	2
UC 741		63.6	54.1	79	1	1.64	13.5	114	400	75.9	58.1	27	0.70	90	1
UC 742		61.9	50.5	80	1	1.80	12.7	113	400	77.7	57.9	30	0.75	85	3
UC 743		64.9	53.2	80	1	1.54	12.3	122	400	76.5	59.9	37	0.64	95	3
UC 780		63.4	7.1	1	.	1.42	11.7	120	400	76.5	59.9	37	0.64	90	4
UC 781		63.7	52.1	78	1	1.44	11.9	112	400	76.7	64.1	37	0.66	90	3
UC 782		65.6	54.1	86	0	1.60	13.1	117	400	76.9	61.2	57	0.68	80	5

TABLE 21 (Cont.)

QUALITY DATA OF DURUM SAMPLES   1988 CROP
STATE=CALIFORNIA   STATION=DAVIS   NURSERY=ADVANCED

-----VARIETY-----	STD	SEMO PRO %	VIS COL G.	COOK WT G.	FIRM-NESS G.	RES	SCORE ***	--------------DEFICIENCIES--------------										
								TW	KW	SM	WP	TX	SX	DU	SK	SP	VI	FR
ALDURA	S	11.3	9.5	32.6	4.86	7.1	1	MJ	MI	MI			MI	MI			MJ	
ALTAR 84		10.4	9.0	31.5	4.88	7.2	1	MJ	MI	MJ				MI	MJ			
CARCOMUN 'S'		10.2	7.5	31.4	5.05	7.3	1	MJ	MJ	MJ								
IMPERIAL		13.3	9.5	30.8	6.24	6.7	4											
MEXICALI	S	10.9	8.0	30.2	6.11	7.1	1		MI					MJ				
NUDURA	S	12.2	9.0	29.8	6.54	7.2	4											
NUTRISEED 28-1		10.6	8.0	31.6	5.55	6.8	1		MI					MI	MJ			
STIFFTAIL 4		12.4	8.0	30.3	5.56	7.6	4											
WAHA 'S'		10.6	8.5	30.9	5.10	6.9	1		MI	MJ				MJ				
WESTBRED 881		11.7	9.0	30.3	6.16	7.1	3											
WESTBRED TURBO		10.4	8.0	30.7	4.51	7.8	1											
YAVAROS	S	10.7	7.5	31.3	5.25	7.8	1											
CD 25126		10.7	8.5	31.6	5.05	7.4	1		MI					MJ				
FMC D5081		11.2	9.5	31.6	5.64	7.4	1		MI	MI				MJ	MJ			
FMC D5118		11.5	9.5	31.0	4.54	7.4	1		MJ	MI				MI	MI			
FMC D5172		12.9	9.5	30.6	5.10	7.3	4											
FMC D5269		11.1	8.5	30.6	5.18	7.6	1		MI	MI				MI				
FMC D5317		12.2	8.5	30.7	5.68	7.2	4		MI	MI								
NK 85D 9687	S	10.1	9.0	31.5	4.77	8.1	1		MI				MI	MJ	MI			
NK 85D 9699		11.4	9.0	30.5	5.68	7.4	3		MI						MI			
PH 883-2		12.8	9.5	29.2	6.13	6.8	4			MI			MI					
PH 884-11		12.0	9.0	30.1	6.33	7.2	3			MI				MI	MJ			
PH 884-32		11.2	9.5	30.9	5.16	7.7	1			MJ	MI			MI	MI			
PH 884-57		10.8	8.0	30.9	4.84	7.4	1			MI	MI			MJ	MI			
UC 712		11.2	9.5	33.2	4.75	7.4	2			MI	MI			MI	MI			
UC 738		12.4	8.0	30.8	4.75	7.0	3			MI				MJ	MI			
UC 739		12.1	9.5	30.6	5.55	6.8	1			MJ				MI	MI			
UC 740		12.3	9.5	31.4	5.40	7.1	1			MJ	MI	MI		MJ				
UC 741		12.9	9.5	30.9	5.21	6.7	1			MI	MI	MJ		MJ				
UC 742		12.3	9.0	29.7	5.75	6.8	3			MI	MI	MJ						
UC 743		11.6	9.0	30.7	5.70	7.3	3			MI			MI	MI	MI			
UC 780		10.6	9.0	30.8	5.21	7.1	1			MJ					MI			
UC 781		10.4	9.0	30.8	5.18	7.1	1			MJ		MI			MJ			
UC 782		12.0	8.5	30.4	5.21	7.6	4			MI					MJ			

DEFICIENCIES	TW	KW	SM	WP	TX	SX	DU	SK	SP	VI	FR
AVG OF STANDARDS	63.9	57.3	1	12.2	78.8	62.9	85	52	11.0	8.3	5.41
MINOR FAULTING VALUES	61.7	55.2	6	12.5	76.3	59.9	75	62	11.5	7.3	3.91
MAJOR FAULTING VALUES	60.8	52.2	11	11.5	75.3	58.0	70	67	11.0	6.8	3.16

*EVALUATION 1=NO PROMISE, 2=LITTLE PROMISE, 3=SOME PROMISE, 4=GOOD PROMISE
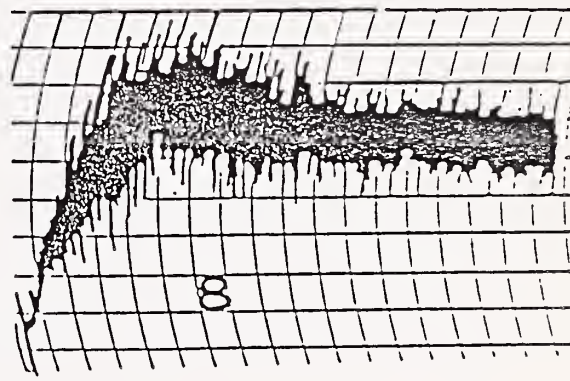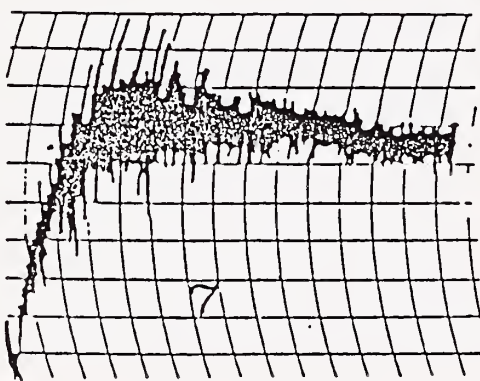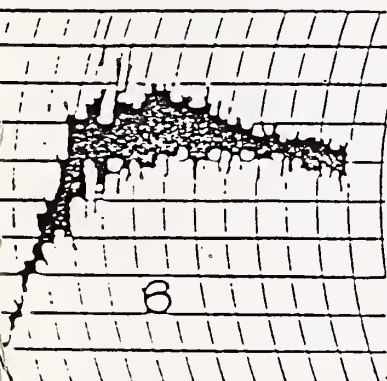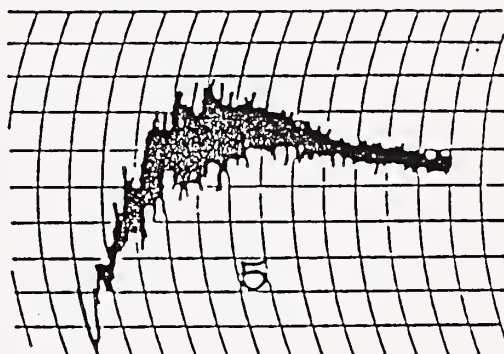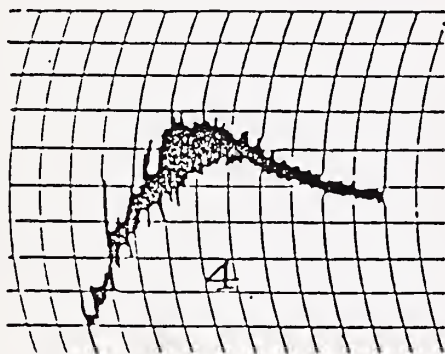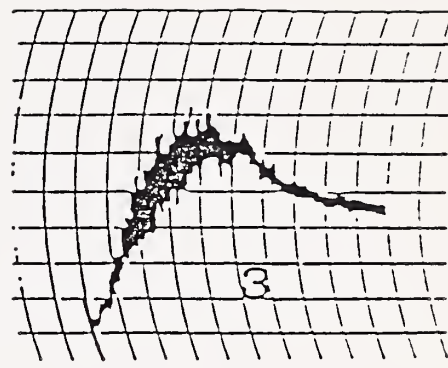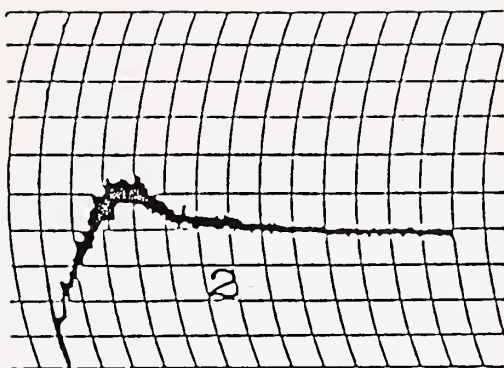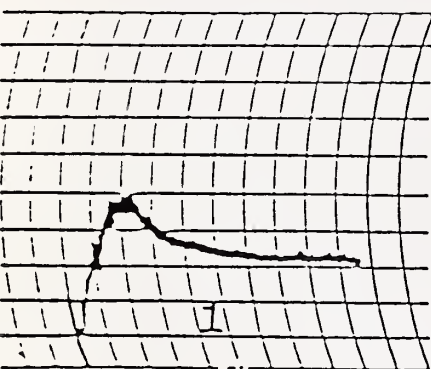
REFERENCE MIXOGRAMS

DURUM WHEAT